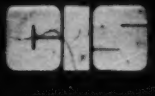
NOTE

This Microfiche meets the quality requirements of the American National Standard for Microfiche of Documents (ANSI PH5.9-1975). However, because of imperfections in the document from which it was made, it contains images that are illegible or difficult to read. The source document for this microfiche is the best copy that could be obtained prior to filming.



Congressional Information Service, Inc.
Washington, D.C.

S. HRG. 100-106 PT. 1

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT AND CERTAIN INDEPENDENT AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1988

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

FIRST SESSION

ON

H.R. 2783

AN ACT MAKING APPROPRIATIONS FOR THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT AND FOR SUNDRY INDEPENDENT AGENCIES, BOARDS, COMMISSIONS, CORPORATIONS, AND OFFICES FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1988, AND FOR OTHER PURPOSES

PART 1 (Pages 1-904)

AMERICAN BATTLE MONUMENTS COMMISSION
ARMY CEMETERIAL EXPENSES
CONSUMER INFORMATION CENTER
CONSUMER PRODUCT SAFETY COMMISSION
COUNCIL ON ENVIRONMENTAL QUALITY
ENVIRONMENTAL PROTECTION AGENCY
FEDERAL EMERGENCY MANAGEMENT AGENCY
NATIONAL CREDIT UNION ADMINISTRATION
NATIONAL SCIENCE FOUNDATION
OFFICE OF CONSUMER AFFAIRS
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
SELECTIVE SERVICE SYSTEM
VETERANS ADMINISTRATION

Printed for the use of the Committee on Appropriations

U.S. GOVERNMENT PRINTING OFFICE

70-539 O WASHINGTON : 1987

For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

S181-28

COMMITTEE ON APPROPRIATIONS

JOHN C. STENNIS, Mississippi, *Chairman*

ROBERT C. BYRD, West Virginia
WILLIAM PROXMIRE, Wisconsin
DANIEL K. INOUYE, Hawaii
ERNEST F. HOLLINGS, South Carolina
LAWTON CHILES, Florida
J. BENNETT JOHNSTON, Louisiana
QUENTIN N. BURDICK, North Dakota
PATRICK J. LEAHY, Vermont
JIM SASSER, Tennessee
DENNIS DECONCINI, Arizona
DALE BUMPERS, Arkansas
FRANK R. LAUTENBERG, New Jersey
TOM HARKIN, Iowa
BARBARA A. MIKULSKI, Maryland
HARRY REID, Nevada

MARK O. HATFIELD, Oregon
TED STEVENS, Alaska
LOWELL P. WEICKER, JR., Connecticut
JAMES A. MCCLURE, Idaho
JAKE GARN, Utah
THAD COCHRAN, Mississippi
ROBERT W. KASTEN, JR., Wisconsin
ALFONSE M. D'AMATO, New York
WARREN RUDMAN, New Hampshire
ARLEN SPECTER, Pennsylvania
PETE V. DOMENICI, New Mexico
CHARLES E. GRASSLEY, Iowa
DON NICKLES, Oklahoma

FRANCIS J. SULLIVAN, *Staff Director*
MARY A. SHIELDS, *Chief Clerk*
J. KEITH KENNEDY, *Minority Staff Director*

SUBCOMMITTEE ON HUD–INDEPENDENT AGENCIES

WILLIAM PROXMIRE, Wisconsin, *Chairman*

JOHN C. STENNIS, Mississippi
PATRICK J. LEAHY, Vermont
J. BENNETT JOHNSTON, Louisiana
FRANK R. LAUTENBERG, New Jersey
BARBARA A. MIKULSKI, Maryland

JAKE GARN, Utah
ALFONSE M. D'AMATO, New York
PETE V. DOMENICI, New Mexico
CHARLES E. GRASSLEY, Iowa
DON NICKLES, Oklahoma
MARK O. HATFIELD, Oregon
(Ex Officio)

THOMAS L. VAN DER VOORT, *Clerk to Subcommittee*
MARION R. MAYER
CAROLYN E. SIMMONS

Minority Staff
STEPHEN H. KOHASHI

CONTENTS

FRIDAY, FEBRUARY 20, 1987

Page

American Battle Monuments Commission 1
Department of Defense—Civil: Department of the Army:
Army Cemeterial Expenses 15
Selective Service System 25
National Credit Union Administration 45

FRIDAY, FEBRUARY 27, 1987

Consumer Product Safety Commission 53
Department of Health and Human Services:
Office of Consumer Affairs 121
General Services Administration:
Consumer Information Center 143

FRIDAY, MARCH 6, 1987

Veterans Administration 159

THURSDAY, MARCH 12, 1987

National Science Foundation 327

FRIDAY, MARCH 13, 1987

National Science Foundation 445
Executive Office of the President:
Office of Science and Technology Policy 469

FRIDAY, MARCH 20, 1987

Federal Emergency Management Agency 495

THURSDAY, MARCH 26, 1987

Environmental Protection Agency 635

FRIDAY, MARCH 27, 1987

Environmental Protection Agency 665
Council on Environmental Quality and Office of Environmental Quality 895

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT-INDEPENDENT AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1988

FRIDAY, FEBRUARY 20, 1987

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:06 a.m. in room SD–124, Dirksen Senate Office Building, Hon. William Proxmire (chairman) presiding.

Present: Senators Proxmire, D'Amato, Domenici, and Grassley.

AMERICAN BATTLE MONUMENTS COMMISSION

STATEMENT OF MAJ. GEN. A.J. ADAMS, SECRETARY

ACCOMPANIED BY:
COL. FREDERICK C. BADGER
COL. CLAYTON L. MORAN
COL. WILLIAM E. RYAN

OPENING REMARKS

Senator PROXMIRE. The subcommittee will come to order.

Our first witness is Maj. Gen. Adams, Secretary of the American Battle Monuments Commission, who is accompanied by Colonel Badger, Colonel Moran, and Colonel Ryan.

General Adams, it has been 7 years since I have had the pleasure to receive your testimony as chairman of this subcommittee, and it is good to see you again. You haven't changed a bit; you haven't aged a day. I wish I could say the same for myself.

BUDGET REQUEST

The American Battle Monuments Commission is requesting an appropriation of $12,925,000 in fiscal year 1988, a reduction of $437,000 below the current year estimate of $13,362,000. You are also requesting an additional $265,000 for pay costs in fiscal year 1987, plus a program supplement of $1,424,000.

General Adams, I have had an opportunity to read your testimony, so you may summarize at this point, if you wish, with the understanding that your complete statement will be printed in the record in full.

SUMMARY OF STATEMENT

General ADAMS. Thank you Mr. Chairman and Senator D'Amato.

As you have copies of my prepared statement and it will appear verbatim in the record, I will summarize its contents to conserve time.

Senator PROXMIRE. Let me interrupt for a moment to say for the record that I am delighted that Senator D'Amato is here.

I am on a number of subcommittees and committees, as Senator D'Amato is, and he has the most phenomenal attendance record I have seen. I don't think that I have ever been in a meeting, and I try to go to every one, that Senator D'Amato isn't there. He is terrific. I want to commend him on that record.

Senator D'AMATO. Thank you, Mr. Chairman.

Senator PROXMIRE. Go right ahead.

General ADAMS. First, I would like to pay tribute to Col. James Herbert Brown, U.S. Army, the officer in charge of our Mediterranean office, who died suddenly in Rome on January 17, 1987. Colonel Brown served with distinction in the military for over 47 years, 17 of which were with this Commission.

His expertise in Commission operations and knowledge of Italian and Tunisian laws, government and commerce will be sorely missed. He will also be sorely missed as a person, for he was genuinely liked, respected and admired by all who came in contact with him.

As anticipated, the falling dollar reduced severely its purchasing power in Europe during fiscal year 1986, necessitating a supplemental appropriation in order to meet the payroll and perform necessary maintenance and repairs.

Fiscal year 1987 is faced with a similar prospect. Funds have been incorporated in our fiscal year 1988 appropriation request to offset, in part, the continued fall of the dollar. Unfortunately, we cannot see the end of the fall.

Legislation was enacted recently charging the Commission with the erection of a Korean War memorial in the Washington, DC, area with funds obtained through private contributions except for $1 million, which it authorized to be appropriated.

As you have indicated, $12,925,000 has been requested by the Commission for salaries and expenses during fiscal year 1988, $437,000 less than fiscal year 1987.

This concludes my summary, sir. We would be happy to respond to your questions.

[The statement follows:]

STATEMENT OF MAJ. GEN. A.J. ADAMS

Mr. Chairman and members of the subcommittee, thank you for the opportunity to testify today in support of the American Battle Monuments Commission's fiscal 1988 appropriation request.

Before commencing testimony, I would like to pay tribute to Col. James Herbert Brown, USA, the officer in charge of our Mediterranean office who died suddenly in Rome on January 17, 1987. Colonel Brown served with distinction in the military for over 47 years, 17 of which were with this Commission. His expertise in Commission operations and knowledge of Italian and Tunisian laws, government and commerce will

be sorely missed. He will also be sorely missed as a person, for he was genuinely liked, respected and admired by all who came in contact with him.

As anticipated and mentioned at last year's hearing, the falling dollar, inflation in the countries where Commission installations are located and the reductions mandated by the Gramm-Rudman-Hollings Deficit Reduction Act impacted harshly upon Commission operations during fiscal 1986. Fortunately, and thanks to your support, a supplemental appropriation was enacted early in July which enabled us to restore our maintenance and repairs to normal levels.

This year we are again faced with a severe loss in purchasing power due to the continuing fall of the dollar. A separate supplemental is being processed to offset these losses in part. Additionally, funds have been incorporated in the Commission's fiscal 1988 appropriation request to offset continued losses of purchasing power in the funds requested for salaries and benefits. Because the Commission is a service-type organization, about three-quarters of its appropriation is needed to defray personnel costs. This leaves only one-quarter of the appropriation for the entire administration, operation and maintenance and repair of Commission shrines worldwide. Even minor fluctuations in the value of the dollar can have serious consequences.

Less than 2 years ago the French franc was over 10 to a dollar. Now, the exchange rate is just 6 to a dollar, or a loss of 40 percent. At the same time, the Italian lire was over 2,100 to the dollar; now there are 1,300 lire to the dollar which also is a loss of about 40 percent. For the past 2 years, there has been generally a steady decline in the exchange rates in Europe and there is no ending in sight.

On October 28, 1986, Public Law 99–572 was enacted into law. It authorizes this Commission to erect a memorial in the Washington, DC, environ honoring members of the Armed Forces of the United States who served in Korea during the Korean war. The legislation requires the memorial to be funded with monies obtained through private contributions, except for $1 million which it authorizes to be appropriated for design, site preparation, associated administrative costs and partial construction. Contributions received in excess of the $5 million needed for construction and $500,000 needed to be deposited with the Department of the Interior for future maintenance will be used to reimburse the federal government at a later date for the funds that it appropriates. To date, 624 contributions amounting to $1,025,650.50 have been received. The largest was $1 million from Hyundai Motor America. A request for the appropriation of federal funds authorized will probably be submitted with our fiscal 1989 appropriation request.

The Commission's appropriation request for fiscal 1988 is $12,925,000, $437,000 less than our fiscal 1987 appropriation request.

This concludes my prepared statement. We will be delighted to respond to your questions. Thank you for your attention.

INITIAL BUDGET SUBMISSION

Senator PROXMIRE. Thank you very much, General.

How would your budget request compare with your initial submission to the Office of Management and Budget?

General ADAMS. It is $611,000 less, sir.

Senator PROXMIRE. Could you provide a list of the improvements, repairs and equipment supply acquisitions you would pursue had your request to OMB not been reduced by $600,000?

General ADAMS. Yes, sir; we will.

[The information follows:]

COMPARISON OF BUDGET REQUEST WITH INITIAL SUBMISSION

The following reductions were made in the Commission's fiscal 1988 budget request in order to comply with the funding ceiling established by OMB:

Casual labor		$234,000
Transportation of things		30,000
Contractual repairs		266,000
Repair memorial steps, Ardennes	$10,000	
Replace cracked memorial window, Ardennes	6,000	
Replace potable water lines, Ardennes	12,000	
Straighten headstones, Brookwood	6,000	
Repair cemetery pools, Epinal	5,000	
Replace roof tile and flashing, both quarters, Epinal	20,000	
Replace telephone system, Paris office	10,000	
Replace telephone intercom, Luxembourg	4,000	
Replace superintendent's furnace, Netherlands	3,000	
Rewire service building, Normandy	6,000	
Rebronze antique green features, Somme	5,000	
Replace visitors' building furnace, Somme	3,000	
Regild main gate, Suresnes	12,000	
Relocate gasoline pump, Suresnes	15,000	
Resurface paths, Suresnes	40,000	
Regild cross candelabras, Luxembourg	5,000	
Rebuild chapel terrace, Rhone	30,000	
Rebuild memorial terrace, Suresnes	74,000	
Supplies and spare parts		10,000
Equipment		3,000
Mower, rotary HP, self propelled	3,000	
Capital improvements		68,000
Install automatic sprinklers, Brookwood	30,000	
Install city water, Henri-Chapelle	6,000	
Install storm windows, both quarters, Lorraine	15,000	
Rehabilitate superintendent's attic, Normandy	5,000	
Construct workshop in garage, Normandy	12,000	
Total		611,000

COLONEL BROWN'S DEPARTURE

Senator PROXMIRE. In your opening statement, you paid a tribute to the work of Colonel Brown. How will the loss of his expertise affect your Mediterranean operations?

General ADAMS. We immediately sent the No. 2 officer in from Paris down to Rome to take charge and he is down there now. At the present time we are recruiting someone to replace Colonel Brown.

VANDALISM

Senator PROXMIRE. Colonel Brown did have extraordinary expertise and will be missed. I suppose there is no way you can replace a man like that.

Are you experiencing any vandalism attributable to anti-American sentiment at the cemeteries and memorials under your jurisdiction?

General ADAMS. Occasionally, sir, we have some graffiti on the walls of the cemeteries, but very, very seldom.

Senator PROXMIRE. Does your budget make provisions for potential future vandalism or isn't that necessary?

General ADAMS. No; it does not.

Senator PROXMIRE. Do you feel it should?

General ADAMS. No, sir.

PRIVATE CONTRIBUTIONS

Senator PROXMIRE. General Adams, in your prepared statement you referred to Hyundai Motor America's contribution to the Korean War Memorial.

Has your Commission the authority to receive contributions from visitors to the various cemeteries and memorials, and if so, can you tell us how much you received in contributions last year and what you expect to receive in fiscal year 1987?

General ADAMS. Yes, sir. We may receive contributions, but we have never sought any at the cemeteries. With respect to the Korean War Memorial, because of the small amount of publicity that this authorization to solicit funds has received, there has been only 874 donations amounting to about $35,000 over and above the million dollars that Hyundai donated.

Senator PROXMIRE. You distinguish donations from regular contributions, I take it. Do you think it would make sense to encourage contributions from visitors as a means of alleviating the budget pressures you obviously face because of the current deficit situation?

General ADAMS. I personally do not, sir. I do not believe the cemetery to be a place to ask for donations.

Senator PROXMIRE. Why not?

General ADAMS. Because I believe our government should take care of its war dead; it just isn't a proper thing to do in my opinion.

Senator PROXMIRE. Is it uncommon for a cemetery to make provisions for donations?

General ADAMS. I have never heard of it being done.

Senator PROXMIRE. See if you can check into that and let us know; I think it would be interesting. These days with Gramm-Rudman and so forth, we have to be just as careful as we possibly can with public money. The public should know that any contributions they would like to make are welcome.

I think that some people might very well like to honor their relatives or their dear friends with some kind of a contribution. I can't see anything wrong with that, provided it isn't pushed on people who can't afford it or don't want to make one.

General ADAMS. I would guess that about 90 percent of the 10 to 11 million people who visit our cemeteries during the year are foreigners, not Americans.

Senator PROXMIRE. Perhaps you can find out if there is any gracious way provisions can be made at the cemeteries to enable people who wish to make a donation to do so.

DETERIORATING EXCHANGE RATE AND PROGRAM SUPPLEMENTAL

General Adams, on page 2 of your budget justification you indicate that you are requesting $1,424,000 in supplemental funds this year to offset, in part, the negative effect the deteriorating exchange rate has had on your ability to buy goods and services overseas.

Can you tell us how you will deal with that part of your loss in purchasing power that is not covered by the supplemental?

General ADAMS. Yes, sir; we will not perform certain projects that we had scheduled and would like to perform. We have postponed them.

Senator PROXMIRE. For the record, please let us know what those projects are that you will have to postpone.

[The information follows:]

Cleaning and repointing of the Montfaucon Monument, $131,000.

EXCHANGE RATE ESTIMATES

Senator PROXMIRE. One more question before I yield to Senator D'Amato.

On page 7 of your justification, you make it clear that your anticipated losses are based on exchange rates in effect on January 1 of this year. Hasn't the situation worsened since then? Give us some idea of how valid those January 1 assumptions are today. We are talking about the exchange rate deterioration since January 1; it has been almost 2 months now.

Colonel RYAN. I can, sir. On January 15, the French franc was 6.17 francs to the dollar, on February 10 it was 6.04, so it went down. On January 15 the Belgium franc and Luxembourg franc was 38.44 to a dollar, and on February 10 it was 37.87, so it is still continuing to go down.

The Netherlands guilder was 2.08 guilders to a dollar and it went down to 2.04. The Italian Lira went from 1310 lira to a dollar to 1291 to a dollar, and the British pound went from 0.665 to 0.657, it also went down slightly.

Senator PROXMIRE. By and large, there was a considerable drop in the value of the foreign currency, and that means that there is a higher cost to you, right?

Colonel RYAN. Yes, sir; it means that actually our purchasing power in francs dropped 28 percent.

Senator PROXMIRE. So present circumstances will not permit you to do what you had planned.

Colonel RYAN. That is right, sir, but hopefully, it will be partially offset.

Senator PROXMIRE. I asked you for the figures as of January 1, and you gave me the figures as of January 15 to February 10; that is a very short period. I imagine that, if anything, purchasing power would likely be greater.

Colonel RYAN. In our last budget, for example, for 1987, we budgeted 8.4 francs to a dollar, so that is 2.4 less.

Senator PROXMIRE. For the record, would you give us as complete a picture as possible and any recommendations you would like to make as to what you think the committee should consider?

General ADAMS. Yes, sir; we shall.

Senator PROXMIRE. Thank you.

[The information follows:]

RECOMMENDATIONS

Between the time that the fiscal years 1987 and 1988 appropriation requests were submitted, the dollar lost 20 percent in purchasing power in France, 24 percent in Belgium and Luxembourg, 25 percent in The Netherlands, 23 percent in Italy, and 11 percent in England. This means that in order to maintain parity in those countries, the dollars expended in foreign currency will have to be increased by those percentages.

For the current year, provided that the dollar stabilizes somewhere near its current level, the supplemental appropriation of $1,424,000 will enable us to pay our personnel and perform most of the scheduled maintenance and repair projects.

For future years, it is recommended strongly that the Commission be authorized to establish its own foreign currency fluctuation account for $5 to $10 million. When currency is purchased at a higher exchange rate than budgeted, the difference would be deposited into the account. When the exchange rate is less, then the difference would be withdrawn from the account. This Commission is prepared to administer such an account within its current personnel resources.

PREPARED STATEMENT

Senator PROXMIRE. Senator D'Amato.

Senator D'AMATO. Mr. Chairman, I have no questions. I am going to ask that a statement that I prepared be introduced into the record.

Senator PROXMIRE. Without objection, so ordered.

[The statement follows:]

STATEMENT OF SENATOR D'AMATO

AMERICAN BATTLE MONUMENTS COMMISSION

Mr. Chairman, the American Battle Monuments Commission serves the very real need of our nation to recognize and remember those men and women who have so valiantly defended this country.

Since its inception in 1923, the Commission has been responsible for designing, constructing and maintaining all federal military cemeteries and memorials, both at home in America and abroad where battles were fought.

Additionally, the Commission provides the general public with information as to specific locations of interment, as well as arranging other services to comfort the next of kin who have lost a loved one in service to our country. At the moment, the Commission is in the process of erecting a memorial here in Washington to honor members of the armed services who served in the Korean war.

We in Congress are well aware of the need to maintain our national memorials and cemeteries. Last July, we passed a supplemental appropriations bill which included funds to ensure the Commission's financial stability. I realize that, because of the dollar's unforeseen fluctuations and deficit demands, the Commission's finances have recently come under strain.

This year, the Commission's appropriations request for fiscal year 1988 is $12,925,000, which I understand is nearly half a million less than its fiscal year 1987 request.

I look forward to hearing testimony this morning regarding the needs and goals of the Commission in the upcoming year.

ARMY CEMETERIAL EXPENSES

I also look forward to hearing the testimony of John Doyle on the costs to this nation of the Arlington National Cemetery and the Soldiers' and Airmen's Home National Cemeteries. Not only do our distinguished servicemen deserve a special place for honorable and proper burial, but living Americans should have a place to pay proper homage to these defenders of American freedom.

SELECTIVE SERVICE SYSTEM

I also welcome Wilfred L. Ebel, Acting Director of the Selective Service System. I want to commend Mr. Ebel and the Selective Service System for the fine job his agency has been doing. The fact that 99.4 percent of those required to register have done so speaks highly of the efforts of the Selective Service System and the commitment by Americans to the registration program. With over 2 million males reaching the age of 18 every year, I am impressed with your agency's ability to inform these young men of their legal obligations.

One of our nation's most important deterrents to aggression is our ability to mobilize quickly. It is my hope that the Selective Service System will continue its fine work to keep this readiness at a high level.

NATIONAL CREDIT UNION ADMINISTRATION

The National Credit Union Administration has been a successful program since its inception in 1934. As you know, federal credit unions are privately owned organizations created to provide a source of credit to their members. The benefits reaped from the service the credit unions provide are immeasurable.

The Administration is involved in a variety of activities including the chartering of new federal credit unions; supervising existing credit unions; engaging in periodic examinations of their financial and operating conditions; and providing administrative services. Its most important function is to provide liquidity assistance to its members and to insure depositors' accounts.

The Administration's efforts have been quite successful in that the insurance equity fund is expected to grow to $1.6 billion in 1987 and $2 billion in 1988.

I look forward to the testimony of our distinguished witnesses this morning and hope that they will provide some guidance as to the direction that the National Credit Union Administration intends to follow in the coming year.

Thank you, Mr. Chairman.

Senator PROXMIRE. Senator Domenici.

Senator DOMENICI. Mr. Chairman, I am principally here to watch you operate as chairman. [Laughter.]

Senator PROXMIRE. You wanted a good laugh.

2-YEAR APPROPRIATION REQUEST

Senator DOMENICI. I do have a request of you and Senator D'Amato. I wonder if it would be possible for you to ask each of the agencies within your appropriation bill as you question them, how difficult it would be, and what problems they might foresee, with a 2-year budget request rather than one.

Senator PROXMIRE. I think that it is an excellent idea. The states have experimented back and forth. Wisconsin went from 1 year to 2 years, and they found that 2 years wasn't satisfactory, and they are going back to 1 year.

I think that this is something that should be seriously considered. I assume the 2-year budget is recommended by the former chairman of the Budget Committee, Senator Domenici, who is certainly as expert in this area as any Member of the Senate.

How would moving from a 1-year to a 2-year budget affect your operation?

We will make this a standard question for every witness in this subcommittee because of Senator Domenici's request. I think that it is a very good request.

Senator DOMENICI. Mr. Chairman, before the answer, would you permit me just one additional observation?

Senator PROXMIRE. By all means.

Senator DOMENICI. It appears to me, Mr. Chairman, that a rough estimate is that about 80 to 85 percent of the appropriated accounts of our government, not the entitlement accounts that are appropriated, are almost from year to year just a natural extrapolation of the previous year.

We go through the hearings, and we produce a bill, but with the exception of special projects and unforeseen incidents that occur, it seems that we just look at a personnel increase issue, or inflation, and the budget request is simply a continuation of their basic program.

I don't think that the institutions are ready to adopt such a major change, but it seems to me that when Senator Bellmon said, before he left this place, that it would be nice if we did budgets one year, and we did the rest of the Senate's business the other year, he was onto something. I think that if we start laying a little groundwork, it is not such an unreasonable appropriation approach.

Some would say, do the budget resolution every 2 years, but they don't want to talk about doing the appropriation bills on a 2-year basis. Frankly, I would resist the one without the other because I think that would produce some very, very significant problems in terms of the relationship here.

I appreciate your interest. Obviously, I am not in a position to seek support for such an approach, but thank you for your kindness in asking the question.

Senator PROXMIRE. Would you like to respond, sir?

General ADAMS. Yes, sir; provided the dollar exchange rates remain stable, 2 years would suit us very, very well.

Senator PROXMIRE. I think that Senator Domenici had exactly that in mind. Obviously, if there is a change in the dollar exchange rate, or if there is a change in inflation, or a change in pay, or if there is a mandatory action that you have to take, you are going to have to have more funds, or maybe less funds, if you are going to maintain the same operation.

I take it that you would have no problem with that, then, if the proper adjustments were made for the changes; is that right?

General ADAMS. That is correct; it would be great.

Senator PROXMIRE. You would prefer that?

General ADAMS. I would prefer it.

Senator PROXMIRE. Suppose you tell me, in just a minute or two, why it would be more advantageous?

General ADAMS. For one thing, we would have just the one hearing in 2 years. [Laughter.]

Then, concerning the budget, it takes an awful lot of time to prepare.

SUBMITTED QUESTIONS

Senator PROXMIRE. Very good. Thank you very much, sir. We have some questions for the record, that we would like to submit.

[The following questions were not asked at the hearing but were submitted to the Commission for response for the record:]

Questions Submitted by Senator Proxmire

AVERAGE SALARY OF UNGRADED POSITIONS

Question. According to page 4 of your justification, the average salary of your ungraded positions jumped from $11,991 in 1986 to an estimated $14,475 in 1987. Can you tell me why you anticipate this significant salary increase?

Answer. Since the 1987 budget request was submitted, the dollar has decreased in value from 20-34% in the European countries where our installations are located. As a consequence, it will require 20-34% more dollars to purchase the foreign currency needed to pay for our supplies, equipment and repairs and the salaries and benefits of our foreign national employees. The $14,475 represents about a 20% increase. Hopefully, the dollar will stabilize somewhere at that level.

REDUCTION IN COSTS

Question. I note that your fiscal 1988 budget makes disproportionate cuts in salaries and personnel benefits by region. For example, you are proposing a cut of $9,000 in salaries and personnel benefits from a 1987 European Cemeteries and Memorials budget of $9,713,000 while your 1987 Mediterranean Cemeteries and Memorials budget of only $1,878,000 would take a salaries and personnel benefits cut of $22,000. Can you explain the reasons for this apparent discrepancy?

Answer. The reductions are not due to cuts but reflect smaller anticipated salary and benefit payments to former employees, particularly for severance pay in the Mediterranean.

MEETINGS AND INSPECTIONS BY COMMISSIONERS

Question. On page 9 of your justification you point out that you will be spending $16,000 in 1988 for meetings and inspections by the Presidentially appointed members of the Commission who are charged with supervision of Commission operations. How does this compare with your current meetings and inspections budget?

Answer. It is larger by $3,800.

CHANGES BY CEMETERY

Question. Your justification indicates that the Meuse-Argonne budget will drop from $921,381 in 1987 to $755,527 in 1988. Please explain this sharp reduction.

Answer. In 1987, the following expenses occurred which did not recur in 1988: $131,000 to repoint the Montfaucon Monument, which is satellited on the Meuse-Argonne Cemetery for maintenance; $8,000 for home leave; $20,000 for equipment replacement and $7,000 in miscellaneous expenditures.

Question. Your St. Mihiel budget shows an increase from $284,562 this year to $392,555 in the coming year. Can you tell us why?

Answer. $107,000 of the $108,000 increase are for new maintenance and improvement projects. These are: refurbishment for $5,000 of the battle maps at the Montsec Monument, which is satellited on the St. Mihiel Cemetery; replacement for $80,000 of the World War II quonset used at the cemetery for a service building; and resurfacing of the road to the compost area for $22,000.

Question. After budgeting your Normandy operations at more than $780,000 in each of the past two years, you plan a reduction to about $640,000 in 1987. What is the explanation for this substantial drop in costs?

Answer. Essentially, a reduction in capital improvement projects and supply and equipment purchases account for the difference. In 1987 the following expenditure occurred that did not recur in fiscal 1988: $121,000 for phase I of an automatic sprinkler system, $3,000 for purchase of supplies and $17,000 for equipment replacement.

Questions Submitted by Senator Garn

CURRENCY FLUCTUATIONS

Question. The most significant shift in your budget, as noted in your statement, is associated with foreign currency fluctuations. Last year, this Committee briefly considered tying in your currency fluctuation costs with the account maintained by the Department of Defense. Would you favor such an arrangement?

Answer. The DoD account is extremely low on funds and is not set up for use by outside government agencies. Furthermore, the time needed to transfer funds between government agencies is rather long. It would be much more feasible to authorize this Commission to establish and administer its own currency fluctuation account of 5-10 million dollars and we strongly recommend that this be done.

Question. What is your current estimate of the full cost of holding your program whole in FY 1987 from such currency fluctuations ($1,424,000 is currently requested.)

Answer. The current estimate is $1,555,000.

Question. What is your estimate of such requirements in FY 1988 compared to what is requested?

Answer. At current exchange rates, we would estimate a need for an additional $426,000.

FOREIGN EMPLOYMENT

Question. Has the Commission given any consideration to "contracting out" to either the local government or to private concerns the operation and maintenance of overseas cemeteries and memorials?

Answer. From time to time, the question has been raised about "contracting out" the maintenance of our shrines as an economy measure. Such action has not been found to be feasible, for generally no money would be saved. To the contrary, in order for a contractor to purchase and maintain his equipment, cover his expenses and make a reasonable profit, it would cost significantly more. Because of the uniqueness of these shrines and their remoteness, it is almost impossible to locate a contractor willing to do the work that possesses the expertise in stone masonry and horticulture needed to maintain these shrines at current standards. When one is located, the cost is prohibitive. Some of the sponsors of private U.S. War monuments in foreign countries provide funds to the Commission to administer the maintenance of their monuments which is performed by contract. We have found that frequent inspection and follow up is necessary in order to ensure even a minimum level of maintenance is performed. Failure of any contractor to perform the maintenance and repairs satisfactorily of ABMC's installations after the Commission's in-house maintenance personnel are released would have a disasterous impact on its mission.

KOREAN WAR MEMORIALS

Question. Who administers the private funds collected for the Korean War Memorial?

Answer. This Commission administers the Korean War Memorial funds. The donations are being placed in a special trust account with the U.S. Treasury.

OTHER BATTLE MEMORIAL REQUESTS

Question. Please submit, for the record, a list of other memorials which the Commission has considered erecting.

Answer. A listing of the memorials are as follows:

Guam, Marianas Islands; retaking of Guam
Salerno, Italy; landing
Gela, Sicily; landing
Casablanca, Morocco; landing
Oran, Algeria; landing
Inchon, Korea; landing
Pusan, Korea; defense
Frejus Beach, Southern France; landing
Leyte Gulf, Philippines; landing
Lingayen Gulf, Philippines; landing
Wake Island; defense
Midway Island; battle
Attu, Alaska, battle
Foggia, Italy; air complex
Tarawa, Gilbert Islands; battle
Guadalcanal, Solomon Islands; battle
Bougainville or New Georgia; battle
Buna, New Guinea; battle
Cape Gloucester, New Britain; battle
Hollandia, New Guinea; battle and Headquarters
Kwajalein, Marshall Islands; battle
Peleliu, Palau Islands; battle
Myityina, Burma; battle
Bataan, Philippines; defense
Port of Spain, Trinidad; anti-sub base and headquarters

Questions Submitted by Senator Stevens

FUTURE WAR MEMORIALS

Question. According to recent correspondence with the Committee, the Commission has prepared a priority list of some 28 future memorials and monuments. What was the criteria for the development of priorities?

Answer. The listing to which you refer was prepared some thirty years ago. The criteria utilized in establishing their priorities were strategic importance, accessibility, anticipated visitation, and availability of a site.

Question. Please provide cost estimates for each of the memorials/monuments on the Commission's priority list.

Answer. These monuments are uniform in configuration and designed to require little maintenance. Estimated average cost is $80,000 for procurement and transportation of materials and construction and $40,000 - $70,000 for site preparation and landscaping.

Question. What is the budget plan for completion of each of the projects?

Answer. Initially we had hoped to complete one every other year, but the continued annual budget deficit prompted us to postpone the program indefinitely.

Question. At several of the sites proposed, other nations have erected monuments to the memory of their countrymen. Does the existence of such monuments enter into the determination of placement on the Commission's priority list?

Answer. No. The priorities were established before any of the other nations began construction of their monuments.

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

ARMY CEMETERIAL EXPENSES

STATEMENT OF JOHN S. DOYLE, JR., PRINCIPAL DEPUTY ASSISTANT SECRETARY OF THE ARMY FOR CIVIL WORKS

ACCOMPANIED BY:
RAYMOND J. COSTANZO, SUPERINTENDENT
JULIUS SMITH, PROJECT ENGINEER
RORY SMITH, BUDGET OFFICER

BUDGET REQUEST

Senator PROXMIRE. Our next witness is John S. Doyle, Jr., Principal Deputy Assistant Secretary of the Army for Civil Works.

I would like to welcome you as a first time witness before the subcommittee. Mr. Costanzo and his associates have been here before.

Welcome back, Mr. Costanzo.

The Department of the Army is requesting an appropriation of $8,504,000 in fiscal year 1988, a reduction of $7,279,000 in your current year estimate. This is a very large reduction. Most of this reduction reflects completion of the second element of the visitors center. You are also requesting an additional $74,000 for retirement costs in fiscal year 1987.

Secretary Doyle, I have had an opportunity to read your testimony, so you may summarize at this point, if you wish, with the understanding that your complete statement will be printed in the record in full.

Mr. DOYLE. Thank you, Mr. Chairman.

Good morning, Senator D'Amato.

SUMMARY OF STATEMENT

Thank you for the opportunity to testify here this morning in support of the fiscal year 1988 appropriation request for cemeterial expenses for the Department of the Army.

With me today, as you mentioned, are Mr. Raymond Costanzo, on my left, the Superintendent; Julius Smith, the Project Engineer on my right; and Mr. Rory Smith, the Budget Officer, on my far left. All are from Arlington Cemetery.

We are appearing on behalf of the Secretary of the Army who is responsible for operating Arlington and Soldiers' and Airmen's Home National Cemeteries. The funds provided by this appropriation will finance operations at both cemeteries.

BURIALS AND INURNMENTS

Mr. Chairman, Arlington National Cemetery is the premier national shrine honoring our nation's veterans and war dead. In fiscal year 1986 there were 2,914 burials and 1,132 inurnments, for a total of 4,046 for the year. This included 72 general and flag officers.

In fiscal year 1987 and fiscal year 1988, the burials and inurnments are projected to be 4,170 and 4,320 respectively, in each year a slight increase over fiscal year 1986 levels.

Arlington National Cemetery has approximately 4 million visitors annually, second in the national Capital region only to the Smithsonian Institution as the most visited public site.

In fiscal year 1986 there were 1,937 nonfuneral ceremonies conducted at Arlington Cemetery. A like number of nonfuneral ceremonies is anticipated for fiscal years 1987 and 1988.

For fiscal year 1988, our budget request is $8,504,000.

The permanent visitors' center, funded in fiscal year 1986, is currently under construction, and a contract for the associated parking facility, funded in fiscal year 1987, will be awarded soon.

The key item in this year's request is funding for design of the next increment of our Columbarium. Use of the Columbarium has been greater than expected and funding will preclude interruption of inurnments.

Mr. Chairman, this concludes my oral remarks. We will be pleased to respond to your questions at this time.

[The statement follows:]

STATEMENT OF JOHN S. DOYLE, JR.

Mr. Chairman, members of the committee, good morning. Thank you for the opportunity to testify in support of the fiscal year 1988 appropriation request for Cemeterial Expenses, Department of the Army. With me today are Mr. Raymond J. Costanzo, Superintendent; Mr. Julius Smith, Project Engineer; and Mr. Rory Smith, Budget Officer, all of Arlington National Cemetery. We are appearing on behalf of the Secretary of the Army, who is responsible for operating Arlington and Soldiers' and Airmen's Home National Cemeteries. The funds provided by this appropriation will finance operations at both cemeteries.

For fiscal year 1988 we are requesting $8,504,000. An increase of $373,000 in operation and maintenance is due primarily to implementation of the Federal Employees Retirement System. Funding increases have been kept to a minimum and will provide adequate maintenance standards expected at this national shrine. These funds will provide for the full employment of 141 work-years, maintenance of the buildings and grounds, and provide the necessary supplies and equipment.

In fiscal year 1986 there were a total of 4,046 interments and inurnments. In fiscal years 1987 and 1988 burials and inurnments are projected to be 4,177 and 4,320, respectively.

CEREMONIES

Arlington National Cemetery is this nation's most prestigious and principal shrine. It is a visible reflection of America's appreciation for those who have made the ultimate sacrifice to maintain our freedom. In addition to the thousands of funerals held there each year—accompanied by military honors—hundreds of nonfuneral ceremonies honoring those whose remains are interred/inurned within the confines of this cemetery are conducted as well. Thousands of citizens, as well as American and foreign dignitaries, visit Arlington to participate in these solemn events. Prime Minister Mulroney of Canada, Presidents Sarney of Brazil and Aquino of the Philippines, and Chancellor Kohl

of the Federal Republic of Germany are a few of the well-known foreign dignitaries who participated in ceremonies during fiscal year 1986. In fiscal year 1986 the President of the United States attended Veterans Day and Memorial Day ceremonies. The Prince and Princess of Wales also attended Veterans Day ceremonies in fiscal year 1986. During fiscal year 1986, Arlington National Cemetery played host to over 4 million visitors, including 10 foreign heads of state. It is second only to the Smithsonian Institution as the most visited public site in the National Capital region.

COLUMBARIUM

In 1980, when the Columbarium was opened, we had estimated that we would service approximately 700 cases per year. Use of the Columbarium has been greater than expected; we are averaging over 1,100 cases per year. Utilization has been increasing an average of 10 percent a year since fiscal year 1982 and we anticipate filling the available spaces by 1990. We feel that this increase can be attributed to four factors. First, a matter of economics. It costs families far less to transport cremated remains from distant points to the Arlington National Cemetery. Second, the availability of the Columbarium for all honorably discharged veterans, who would not otherwise be eligible for burial at Arlington National Cemetery, has been given wide national coverage in all the major veterans organizations' publications. Third. the age of World War II veterans is increasing and, therefore, interments are increasing. Finally, cremation has become more accepted by the public. To preclude interruption of inurnment because of time delays in design and construction, design funds will be requested for fiscal year 1988 and funds for construction of the next increment will be requested for fiscal year 1989.

VISITORS' CENTER

The permanent visitors' center, funded in fiscal year 1986, is currently under construction and a contract for the associated parking facility, funded in fiscal year 1987, will be awarded soon. Necessary changes to the design of the parking facility have been incorporated to implement a paid parking system.

Approval of our fiscal year 1988 request will permit us to continue the high standards of maintenance expected at these cemeteries. We want to thank the committee for its support in the construction of the visitors' center. We look forward to your participation in the dedication of the visitors' center when it is completed.

Mr. Chairman, this concludes my remarks. We will be pleased to respond to questions from the committee at this time.

BUDGET REQUEST

Senator PROXMIRE. What was your initial request to OMB for fiscal year 1988?

Mr. DOYLE. The initial request was $8,411,000, which is about $93,000 less than the number that we are requesting here this morning.

Senator PROXMIRE. You had a $93,000 reduction in your request?

Mr. DOYLE. We have been increased by $93,000 over our original request.

Senator PROXMIRE. Congratulations. If we were playing tennis, I would leap over the net and shake your hand. This doesn't happen very often. [Laughter.]

Why did they increase it? Why are they pushing more money on you?

Mr. DOYLE. Most of the increase is due primarily to implementation of FERS and annualization of the fiscal year 1987 pay raise. The federal employee retirement changes were brought into effect by the 99th Congress.

PAID PARKING

Senator PROXMIRE. I thought you were talking about mink coats.

Your prepared statement notes that you will be implementing a paid parking system adjacent to the visitors' center.

Mr. DOYLE. Yes, sir.

Senator PROXMIRE. When will that system be in place?

Mr. DOYLE. I believe that it is March 1988.

Mr. COSTANZO. We anticipate that if all of the construction is completed on schedule, that the facility could be opened in March 1988, and we plan to initiate the paid parking at that time.

Senator PROXMIRE. Will fees from your paid parking be available to offset a portion of the cost of running the cemetery?

Mr. DOYLE. We intend to deposit the fees into the U.S. Treasury, and there will be no effect, Senator, on our budget.

DONATION PROGRAM

Senator PROXMIRE. Mr. Doyle, have you given any consideration to instituting a donation program to supplement the costs of maintaining the cemetery?

I raise the issue because the cemetery will be charging for parking at the new visitors' center. Why not give those who come on foot or by subway the chance to contribute, along the same lines that I mentioned before?

Mr. DOYLE. We already have in place a mechanism to receive donations.

Ray, you may want to explain how that system works. There is authority that resides in Ray for smaller amounts that are not specifically earmarked. We have other authority that requires secretarial approval if donations are made for specific amounts.

Senator PROXMIRE. Can you also tell us, while you are doing that, how much has been received?

Mr. COSTANZO. We received a $10,000 donation from the American Legion to maintain the lighting at the Tomb of the Unknown Soldier. The AmVets have donated $90,000 for purchase of a carillon for the cemetery. We have received numerous tree donations from the general public, which have helped to reduce our landscaping costs.

We do not have any facilities where the general public can walk in and drop coins in a box, but we do have a mechanism for those who wish to make an unconditional donation to the cemetery. If they are conditional donations, then they go to the Secretary of the Army for approval.

Senator PROXMIRE. I want to congratulate you on what you have done. It seems to me that you might also make some kind of pamphlet available to people so that they have an address, and so forth, if they care to make a donation.

Mr. COSTANZO. We are considering that, sir.

COLUMBARIUM

Senator PROXMIRE. You indicated in your opening statement that the use of your Columbarium has been greater than expected, with over 1,100 cases per year, rather than the 700 cases per year originally projected, an increase of 10 percent a year since 1982. You also point out that the Columbarium is available to all honorably discharged veterans, who would not otherwise be eligible for burial at Arlington Cemetery.

You are requesting $452,000 to design an expansion of the Columbarium next year. Can you tell us how much it will cost to construct the planned increment of the Columbarium?

Mr. SMITH. The next 10,000-unit is estimated to cost $5.6 million.

Senator PROXMIRE. How would your Columbarium program be affected if the Congress were to limit availability of the Columbarium to only those veterans who were otherwise eligible for burial at Arlington National Cemetery?

Mr. DOYLE. Currently, under current policy, we project that we will no longer have available space in the Columbarium as of about January or February 1990. If we were to limit the opportunity to be buried in the Columbarium in the fashion that you described, it would extend the availability of those vaults somewhat. We would have to take a look at our past practices to see how much that would be.

Senator PROXMIRE. Could you provide that for the record?

In other words, you are telling me that it might be 1991 or 1992, but it might be the year 2000.

Mr. DOYLE. We would have to take a look at the mix of categories of current burials, and then make some kind of a projection based on our current estimates of future needs. We will do that for the record, Senator.

[The information follows:]

COLUMBARIUM USAGE

Under current eligibility policy for inurnment in the Columbarium, it is estimated that niches in the Columbarium will be utilized by January 1990. If Congress were to limit availability of the Columbarium to only those veterans who were otherwise eligible for ground burial at Arlington National Cemetery, we estimate that available niches will be utilized by April 1996.

Senator PROXMIRE. If we declined your $452,000 request for Columbarium design funds, how would your Columbarium program be affected?

Mr. DOYLE. As I mentioned, if we don't make any changes in current practices, we would no longer have space beyond approximately January 1990.

Senator PROXMIRE. When will the new Columbarium be available, if you started it next year?

Mr. SMITH. Our present schedule calls for the design contract to be issued in October 1987, the advertised bids in October 1988, and construction would be completed by January 1990.

Senator PROXMIRE. Just in time, so you need the appropriation this year.

Mr. DOYLE. Yes, Senator.

LAND DEVELOPMENT

Senator PROXMIRE. You are requesting $70,000 for land development design in your 1988 budget. Can you tell us the outyear costs of the land development design project?

Mr. SMITH. In fiscal year 1990, we will be requesting $948,000 for development.

Senator PROXMIRE. Suppose that we were to delay funding for the land development design, how would that affect your operations?

Mr. SMITH. We will not be able to develop a 15-acre piece of land, and it would more or less cause us to crowd our burial activity into one section of the cemetery. We need to be able to disperse our burial activity.

Senator PROXMIRE. Do you have a date when you would need to have that money for the 15 acres?

Mr. SMITH. Fiscal year 1990.

REIMBURSEMENT LANGUAGE

Senator PROXMIRE. I note that you are proposing a deletion of language that allows you to reimburse the applicable appropriation for the pay and allowances of military personnel performing services primarily for the benefit of the cemetery.

Can you tell us why you are suggesting this change?

Mr. DOYLE. Yes, sir. There was a recent organizational change in the Army transferring the immediate supervisory responsibility over the cemetery from the U.S. Army Military Personnel Center to the U.S. Army Military District of Washington. That change eliminated the need to reimburse two positions that had previously been provided on a reimbursable basis under the previous arrangement.

SECURITY CONTRACT

Senator PROXMIRE. You now plan to spend $578,000 on 1987 security contract costs, about one-third more than your original estimate. Why did your initial estimate of security contract costs prove to be $142,000 too low in 1987?

Mr. COSTANZO. Sir, we changed the method of awarding the security contract because of the substandard service that we had been previously receiving. We changed the procedure from accepting low bids to a request for proposal.

Under that system we have the opportunity to review the bids and select those who are most capable of performing the services that we need at the lowest price. While the cost did go up, the quality of the service improved.

FLAGSTAFFS AND MONUMENTS

Senator PROXMIRE. Last year's justification indicated you planned a major increase in your flagstaff and monuments maintenance program. Your budget for this activity would have increased from $1,000 in 1985

to $25,000 in fiscal years 1986 and 1987. This year's justification indicates that you did not implement this increase and plan to provide only $3,000 for the program next year. Why did these cost estimates change so drastically?

Mr. COSTANZO. Sir, that is simply a change in bookkeeping. We had previously included in that category the cost for inscribing the niche covers at the Columbarium. Since this has become a recurring cost, we have moved that item down to other recurring contracts.

What you now see in that category is the actual amount we need for flagstaff and momument maintenance, which is normally between $1,000 and $3,000 a year.

SUBMITTED QUESTIONS

Senator PROXMIRE. Thank you very much. We have some questions for the record. We would appreciate very much your response.

Mr. DOYLE. Thank you, Senator.

[The following questions were not asked at the hearing but were submitted to the Department for response for the record:]

Questions Submitted by Senator Proxmire

MAINTENANCE OF ROADS AND WALKS

Question: Your budget for maintenance of roads and walks shows an increase from $69,000 in 1987 to $94,000 in 1988. I also note that last year you budgeted no funds for such maintenance in 1986 but that this year's justification indicates you actually spent $204,000 in 1986. Can you tell us what is causing this kind of cost growth?

Answer: Due to funding constraints there is a significant back log of road repair maintenance work for the 18 miles of roads in the cemetery. Deterioration of our roads is a continuous problem that will not improve until we can obtain funding to accomplish the major road renovations as indicated in our master plan.

MAINTENANCE COSTS

Question: On page 11 of your justification, you show a reduction in water, sewer and electrical system maintenance costs from $50,000 currently to $6,000 in 1988. Can you tell us how this will affect your operations?

Answer: During fiscal year 1987 we are repairing the deteriorated water fountain on the mall adjacent to the Tomb of the Unknown Soldier. Our normal recurring expense for this account is approximately $6,000 annually.

Question: Your justification shows a jump of $30,000 in your initial 1987 estimate for the maintenance of walls, fences and gates. This looks like a one-time expense. What caused this increase?

Answer: We normally try to schedule repair of approximately 1,000 linear feet of the stone wall each year. During fiscal year 1986, no work on walls was accomplished because funds were not available. During fiscal year 1987, we will catch up on the back log and repair 1,600 linear feet. In fiscal year 1988, we will be returning to 1,000 linear feet a year.

COMMUNICATIONS, UTILITIES AND OTHER RENTS

Question: You are requesting $214,000 for communications, utilities and other rents in fiscal year 1988, an increase of about 15 percent above your current budget and approximately 22 percent more than you initially requested in fiscal year 1987. Can you tell us why there has been such a sharp increase in this item?

Answer: During fiscal year 1988, we anticipate an increase usage of approximately 580,000 kilowatt hours due to the opening of the new visitor's center which is a total electric building.

TWO-YEAR APPROPRIATION BILLS

Question: Senator Domenici has suggested that we explore the possibility of passing two-year appropriation bills. Would this approach create any particular problem for your office or do you see a benefit in having to justify your budget only once every two years?

Answer: The idea of having to justify our budget only once every two years would not be a problem if enough flexibility was available for us to deal with unforeseen circumstances that could arise between justifications.

Question: Approximately what portion of your annual appropriation request do you consider to be simply a repeat of the prior year's submission?

Answer: Excluding special construction projects, approximately 90% of our annual appropriation request is considered a repeat of the prior year's submission.

Question: Would you expect to realize any budget savings if you could plan on a two-year basis? If so, could you estimate what the savings would be?

Answer: We cannot foresee any savings because of the type of operation we carry on.

QUESTIONS SUBMITTED BY SENATOR GARN

PARKING GARAGE

Question: This committee has been fortunate in being able to provide the funding for the new visitors center and parking garage at Arlington National Cemetery, in these times of severe budgetary constraint. Last year, we had to insist that some user fee be established to defray the cost of the parking garage construction cost.

Please describe the study conducted by your agency in evaluating this fee proposal.

Answer: The plan provides for a parking fee of $1.00 per hour for passenger vehicles and $7.50 per hour for buses. These fees will double after the third hour to discourage use of the facility by commuter traffic. This fee structure provides for amortizing the cost of the facility within 16 years. The fees collected will be deposited to the United States Treasury as miscellaneous receipts. Relatives visiting the gravesites of their loved ones are issued vehicle passes that allow them to drive directly to the gravesite without having to use the parking facility or pay a fee.

COLUMBARIUM EXPANSION

Question: What estimate do you have of the period which this expansion will meet the current level of needs?

Answer: Our estimates are based on Veterans Administration actuarial tables and actual use. We anticipate the new 10,000 niche module to last approximately 8 years.

SELECTIVE SERVICE SYSTEM

STATEMENT OF WILFRED L. EBEL, ACTING DIRECTOR

ACCOMPANIED BY:

G. HUNTINGTON BANISTER, CONTROLLER

KENNETH JOHNSEN, ASSOCIATE DIRECTOR FOR INFORMATION MANAGEMENT

BUDGET REQUEST

Senator PROXMIRE. Our next witness will be Wilfred L. Ebel. Mr. Ebel is Acting Director of the Selective Service System.

Mr. Ebel, it is good to have you here today. You are requesting, as I understand it, $26,520,000 in fiscal year 1988, a slight increase over your current budget.

Go right ahead with your testimony, with the understanding that your printed statement will be included in full in the hearing record.

Mr. EBEL. I will read an abbreviated statement at this time.

Senator PROXMIRE. Very good.

ORAL STATEMENT OF ACTING DIRECTOR

Mr. EBEL. Mr. Chairman, it is an honor for me to appear before you to report that the nation's Selective Service System continues in a high state of readiness and is fully capable of performing its mission.

During fiscal year 1988, the Selective Service System will continue to register young men as they turn 18, conduct a registrant information program to ensure compliance with the law, and maintain a data base of registrant records.

The level of mobilization readiness in the Selective Service elements, at both the national and state levels, remains high. As of December 1986, compliance with registration by draft-eligible youths, that is the years of birth groups 1961 through 1966, was 99.4 percent.

REGISTRATION

The effectiveness of our registration program has been helped immeasurably by legislation such as the Thurmond-Montgomery amendment requiring all male applicants for jobs in the executive branch of the federal government to be in compliance with the registration requirement as a condition for employment.

Registering all eligible young men within 30 days of their 18th birthday remains the primary goal of the Selective Service System. To ensure the highest degree of fairness to all young men, a computer-based program identifies nonregistrants who are required to register, and notifies them of their obligation.

Potential registrants are identified from lists provided by various sources. Names received from the state or federal agencies are matched with our registration files to eliminate the names of those men who have already registered. The remaining names are then matched with Defense Department and U.S. Coast Guard lists to eliminate the names of those men serving on active duty.

Compliance letters are then sent to each male identified as a possible nonregistrant. This letter includes a form on which the man may register. As of December 1986, over 2.3 million registrations had been received or confirmed as a result of the Selective Service compliance program.

One of the greatest challenges confronting the Selective Service is to reach the nearly 2 million U.S. males who turn 18 every year and inform them of their legal obligation to register.

Over the past several years, we have been fortunate to receive the support of well-known celebrities who have recorded messages encouraging registration. We also distribute high school information to all high schools in the country. A vigorous public awareness program continues to be vital to the success of our nation.

HEALTH CARE PERSONNEL

The Military Selective Service Act provides authority to induct young men when ordered by the Congress and the President. As the law now stands, the Selective Service lacks authority to induct, or even to plan for the call up of needed health care personnel.

To solve this problem, the Selective Service has proposed the necessary legislative language which would permit the development and training of a standby system for the postmobilization registration and induction processing of health care personnel.

This language does not grant authority to register or induct medical personnel, but it would enable the Selective Service to prepare for such an eventuality in time of national emergency.

IMMIGRATION REFORM LAW

Implementation of the immigration and naturalization reform law this year will involve the Selective Service in a substantial way. The McCollum amendment requires that anyone applying for amnesty be registered with Selective Service if required to register.

PERSONNEL

The various boards of the Selective Service System are the heart of the claims and appeals in this process for those registrants who are eligible for deferment or exemption from induction. These boards are composed of 11,000 citizen volunteers who donate their time to participate in a comprehensive training program designed to ensure fairness and uniformity in the decisionmaking process.

As of December 1, 1986, 10,135 volunteers have been appointed to local boards. Of these appointees, 95 percent have been trained in the reclassification requirements.

The System's 728 Reserve Forces officers continue to represent a vital ingredient in mobilization readiness. These Reserve Forces officers have received detailed training on how to reconstitute the field structure in time of mobilization and have participated in joint exercises to test the mobilization plans and procedures.

These officers would immediately expand our system from the peacetime structure of 9 operating sites to 577 sites during mobilization. The expanded operations can be fully operational in 3 days. The Selective Service System stands ready to mobilize if called upon by the President and the Congress to mobilize.

Mr. Chairman, this concludes my formal statement. Mr. Banister and I will be happy to respond to any questions.

[The statement follows:]

STATEMENT OF WILFRED L. EBEL

Mr. Chairman, distinguished members of the Subcommittee, it is an honor for me to appear before you to report that the nation's Selective Service System continues in a high state of readiness and is fully capable of performing its mission. During Fiscal Year 1988, the Selective Service System will continue to register men as they reach 18, conduct a registrant information program to ensure compliance with the law, and maintain a data-base of registrant records.

The System will continue to strive to enhance its capability to respond rapidly and efficiently if ordered to begin inductions. The level of mobilization readiness of Selective Service elements at both the national and state levels remains high. As of December 1986, compliance with registration by draft eligible youths, i.e., year of birth groups 1961-66, was 99.4%.

The effectiveness of our registration program has been helped immeasurably by legislation such as the Thurmond-Montgomery Amendment requiring all male applicants for jobs in the Executive Branch of the Federal Government to be in compliance with the registration requirement as a condition for employment. I am pleased to state that the U.S. Postal Service has adopted a similar policy. In addition, several major defense contractors are cooperating on a voluntary basis and asking prospective male employees if they have complied with the Selective Service registration requirement. Similarly, more and more states are passing Solomon-type Amendments requiring registration prior to receiving certain educational loans.

Registration Improvement

The Congress, through the Military Selective Service Act, requires that males ages 18 through 25 to be registered with Selective Service. Therefore, registering all eligible young men within 30 days of their 18th birthday remains the primary goal of the Selective Service System. The vast majority of America's young men dutifully respond to the registration requirement. Because each man who does not register increases the draft vulnerability of those who do register, failure to register is not a victimless crime. To assure the highest degree of fairness to all young men, a computer-based program identifies nonregistrants who are required to register and notifies them of their obligation. Our registration improvement program also targets certain regions of the country, where statistics indicate nonregistrants are concentrated.

Potential registrants are identified from lists provided by various sources. Drivers' license records are obtained by the Selective Service from almost all of the states and territories and are the source of almost 84% of the individuals identified for further contact. In areas which have been identified as "target areas" (having above average registration shortfalls), lists are also obtained from other sources such as high schools and state and local voter registration records. Data provided by the Social Security Administration, Department of Defense, Department of Transportation, and the Department of Education are also used to enhance registration.

mobilization. We could substantially shorten the projected delivery times, after mobilization, of health care personnel if we were provided authority and funding to design and develop a system for the post-mobilization registration of individuals with essential medical skills.

To solve this problem, Selective Service will be soon proposing the necessary legislative language which would permit the development and planning of a standby system for the post-mobilization registration and induction processing of health care personnel. This language does not grant authority to register or induct medical personnel, but it would enable Selective Service to prepare for such an eventuality in time of national emergency.

Immigration Reform

Implementation of the Immigration Reform law this year will involve Selective Service in a substantial way. The McCollum Amendment requires that anyone applying for amnesty be registered with Selective Service if required to register. We are working closely with the Immigration and Naturalization Service to assure that this process goes smoothly and that our interchange of data is in accordance with the new law.

Readiness and Mobilization

The various boards of the Selective Service System are the heart of the claims and appeals process for those registrants who are eligible for deferment or exemption from induction. These boards are composed of 11,000 citizen volunteers who donate their time to participate in a comprehensive training program designed to ensure fairness and uniformity in their decision making process.

As of December 1, 1986, 10,135 volunteers have been appointed to local boards. Of these appointees 95% have been trained in the reclassification requirements. The mobilization exercise program for Fiscal Year 1988 will provide Selective Service with the opportunity to conduct a nationwide exercise of its system. Selected State Headquarters, Area Offices, and Local Appeals Boards will be simultaneously activated.

The System's 728 Reserve Forces Officers continue to represent a vital ingredient in mobilization readiness. Upon mobilization, Selective Service must immediately expand to a fully operational nationwide system. These Reserve Forces Officers have received detailed training on how to reconstitute the field structure in time of mobilization and have participated in joint exercises to test the mobilization plans and procedures. These officers would immediately expand our system from the peacetime structure of nine operating sites to 577 sites during mobilization. The expanded operations can be fully operational in three days.

Selective Service stands ready to mobilize, if called upon by the President and the Congress to mobilize.

Mr. Chairman, this concludes my formal statement. Mr. Banister and I would be happy to respond to any questions you may have.

The names received from the states or the federal agencies are matched with our registration file to eliminate the names of those men who have already registered. The remaining names are then matched with DOD and the United States Coast Guard lists to eliminate the names of those men serving on active duty. Compliance letters are then sent to each male identified as a possible nonregistrant. This letter includes a form on which the man may register.

Under a cooperative program developed with the Department of Education this year more than 23,000 men who either applied for, or received federal Pell Grants, registered after Selective Service sent them a letter. They were identified by a new computer matching program as possible lawbreakers, but their registration brought them into compliance with Federal law. As of December 1986, over 2.3 million registrations have been received or confirmed as a result of the Selective Service compliance program.

Our goal is registration not prosecution, but if a man refuses to register or prove that he is exempt from the registration requirement, his name is referred to the Department of Justice for investigation and possible prosecution.

Public Awareness

One of the greatest challenges confronting Selective Service is to reach the nearly 2,000,000 U.S. males who turn 18 every year and inform them of their legal obligation to register. Over the past several years we have been fortunate to receive the support of well-known celebrities who have recorded messages encouraging registration. The use of such personalities, together with the general cooperation of newspaper, radio, and television public service directors, ensures that our message reaches those males required by law to register.

We also distribute high school information kits to all high schools in the country. These kits include posters, information flyers, camera-ready awareness messages for school newspapers, and NFL football schedules. A similar kit is provided to colleges and universities. We are continuing to make every effort to communicate our message to the growing Hispanic and Asian population. Teachers and guidance counselors at America's schools have requested over 20,000 Selective Service teachers guides this year. A vigorous public awareness program continues to be vital to the success of our mission.

Health Care Personnel

In wartime our nation must possess the capacity to provide both additional combat troops and the medical personnel to treat them. While the Military Selective Service Act provides authority to induct young men, when ordered by the President and the Congress, as the law now stands, Selective Service lacks authority to induct or even to plan for the call up of needed health care personnel.

The System does not presently have the authority to develop the means or capability to deliver vitally needed medical personnel in the early days following

2-YEAR BUDGET

Senator PROXMIRE. Thank you very much, Mr. Ebel. I appreciate your testimony.

I might say that the length of the memory of this Senator is not one of my pride and joys. I told Senator Domenici, as you know, that I would ask every witness the question about moving from a 1 year to 2 year budget. The very first witness who appeared after I made that pledge, I neglected to ask. For the record, we are going to ask the previous witness how moving from a 1-year to a 2-year would affect his operation.

I might start off with that question for you. We will be sure to ask that of all witnesses from now on. Tell us what would be the effect on your operation if we moved from a 1-year to a 2-year budget?

Mr. EBEL. Mr. Chairman, as a Defense-related agency, we are submitting a 2-year budget. We fully support that proposal. Our feeling is that the benefits of a 2-year budget are that it would allow us to have more effective long-term planning. In other words, it would provide for a continuity of operations by, for one thing, eliminating the uncertainty of the lapse of appropriation every other year.

I must also comment, Mr. Chairman, that there is a drawback to a 2-year budget, and that is if a need arises for a new or unanticipated requirement, then there would be the need to submit a request for a supplemental appropriation.

BUDGET REQUEST TO OMB

Senator PROXMIRE. Thank you, sir, that is very helpful.

Please tell us what your initial request to OMB was and which of you, activities might be curtailed because of the OMB passback?

Mr. EBEL. Our initial request to OMB was approximately $3.4 million higher than what we are submitting today, Mr. Chairman. One of the largest items is our proposal for a health care personnel system to plan for the postmobilization registration and induction of doctors and nurses, and medical personnel.

Also, we would have requested 15 days of active duty annually for our Reserve Forces officers. We are requesting in this budget only 13 days of training for those Reserve Forces officers.

ON-TIME REGISTRATION OF 18-YEAR-OLDS

Senator PROXMIRE. Mr. Ebel, on the first page of your prepared statement, you indicate that registering all young men within 30 days of their 18th birthday remains your primary goal. Now I realize that compliance as a percentage of total draft eligible youth is very high. However, I would like to know what percentage of those reaching the age of 18 are meeting the statutory 30-day requirement?

Mr. EBEL. Sir, I would be pleased to submit a statement for the record.

[The information follows:]

ON-TIME REGISTRATION OF 18-YEAR-OLDS

Of those men reaching the age of 18, 56 percent are meeting the statutory requirement to register within 30 days of their 18th birthday. Historically, however, about 80 percent of the draft-eligible men register during the calendar year in which they turn 18. About a year later, the compliance rate normally increases to 90 percent. Within 2 years, when a year of birth group reaches 20 years of age and is in first priority for a possible draft, the registration compliance figure has usually approached 98 percent.

Mr. EBEL. I can you tell you that it is something less than 80 percent that actually come within the 60-day window, 30 days before and 30 days after reaching age 18.

While we are making every effort to improve this, I would like to point out that in the event Congress ordered a return to a draft, the first individuals called would be 20-year-olds. Therefore, we do have a considerably longer window than 30 days in which to get to our 98 or 99 percent, which we consider a fair and equitable program.

Senator PROXMIRE. You say that it is less than 80 percent?

Mr. EBEL. Yes, sir.

Senator PROXMIRE. How much less?

Mr. EBEL. It would be somewhere in the 70s, sir.

Senator PROXMIRE. Somewhere in the 70s?

Mr. EBEL. Yes, sir.

Senator PROXMIRE. How does that compare with what it has been over the last few years since we instituted this system?

Mr. EBEL. There has been virtually no change, Senator.

Senator PROXMIRE. It has been about the same level?

Mr. EBEL. Yes, sir.

Senator PROXMIRE. Why is there a difference? Why is it that you have 20 to 30 percent of the people who should register not doing so?

Mr. EBEL. I would like to think, sir, that a good part of it is typical teenage tardiness. I think some of it is due to unawareness of the requirement, and that is why we have these various public awareness programs, by which we try to reach every young man as he turns 18 to remind him that he is required to register.

TARGET CITIES WITH REGISTRATION SHORTFALLS

Senator PROXMIRE. On the second page of your justification, you say that you will continue to concentrate on cities where registration shortfalls are greatest. Can you give us some idea of how effective this approach of pinpointing your efforts has been?

Mr. EBEL. It is a little hard to measure it statistically, sir, but what we have done is redirected our public awareness funds into cities where we know that registration is below the average.

Senator PROXMIRE. Why can't you measure that statistically?

Mr. EBEL. It is very hard to get the final figures down to the city level, particularly as we move farther and farther away from the 1980 Census, which is our base starting figure for where the 18-year-olds are.

Senator PROXMIRE. Then how do you know where to pinpoint the money?

Mr. EBEL. We have seen in some of the larger cities, from the gross statistics that we have, that there are urban areas in which registration rates are lower than we would have in the state as a total or in the national total.

Senator PROXMIRE. Do you know whether the various actions that you have taken are effective or not?

Mr. EBEL. We do know, sir, that we have improved registration to the 98 to 99 percent level, so we know that the programs are effective.

Senator PROXMIRE. How does it vary between different sized cities? Is there a lower registration percentage in a big city, or less in a moderate size city, or in a small city, or what?

Mr. EBEL. The registration compliance rates are lower in the largest cities. We have a list of some 40 cities in which there is a registration compliance problem. I would be happy to submit a list of those cities for the record.

[The information follows:]

LIST OF TARGET CITIES

Although Selective Service designated 42 target cities for registration improvement activities in fiscal year 1986, due to a reduction in resources, 24 cities were targeted for registration improvement activities. These cities are:

Region I: New Haven, Conn.; Washington, DC; Boston, Mass.; New York City, N.Y.; and Philadelphia, Pa.

Region II: Miami, Fla.; Orlando, Fla.; Puerto Rico; Memphis, Tenn.; and Virginia Beach, Va.

Region III: Chicago, Ill., and Minneapolis, Minn.

Region IV: New Orleans, La.; Dallas, Tex.; Houston, Tex.; and San Antonio, Tex.

Region V: Phoenix, Ariz.; Sacramento, Calif.; San Francisco, Calif.; Fresno, Calif.; Los Angeles, Calif.; San Diego, Calif.; and Honolulu, Hawaii.

Region VI: Denver, Colo.

Note: in fiscal year 1986, $367,094, or 1.4 percent, of the Selective Service budget was spent in target cities for registration improvement activities.

Senator PROXMIRE. The very large cities, New York, Chicago, Los Angeles, et cetera.

Mr. EBEL. Unfortunately, also Milwaukee.

Senator PROXMIRE. Is that right? I guess people are working so hard they don't have time to go to register. [Laughter.]

That is hard to believe. How does Milwaukee rate with the other cities?

Mr. EBEL. I would have to get that for the record.

[The information follows:]

Milwaukee ranks 31 out of 54 metro areas/target cities.

Senator PROXMIRE. You mentioned it. You brought it up.

Mr. EBEL. I do know that it is one of our 40 target cities.

Senator PROXMIRE. We lead in everything out there. [Laughter.]

IMMIGRATION REFORM AND ADDITIONAL FUNDS

Mr. Ebel, in your prepared statement, you point out that you will be working closely with the Immigration and Naturalization Service to assure that anyone applying for amnesty under the Immigration Reform

Act is registered with Selective Service if required to do so. How much of your budget will you devote to this activity in 1987 and in 1988?

Mr. EBEL. The amount of funds that we will expend in this will be very minimal, sir. I would estimate that we will have about $25,000 in printing costs to provide registration forms at the points at which the individuals will come forward to request amnesty.

Senator PROXMIRE. When will you have a fully operational system in place to deal with the amnesty applicants under the Immigration Reform Act?

Mr. EBEL. We expect that program to kick off in May of this year, sir.

ADDRESS VERIFICATION

Senator PROXMIRE. I would think that one of your most difficult tasks is keeping your registrant information base up to date with current addresses and so forth. After all, you are dealing with a highly mobile population.

What percentage of your registrant data base is current and how has that percentage changed over the last few years?

Mr. EBEL. We manage to keep the registration base current by a number of methods. Whenever an individual writes to us or telephones to us to ask for information, we immediately verify his address.

Senator PROXMIRE. My question was not how you do it, but what percentage of your registrant data base is current, and how that has changed over the years.

Mr. EBEL. Let me ask Mr. Ken Johnsen of our data management center if he wants to address that question.

Senator PROXMIRE. Mr. Johnsen, why don't you come up and sit right over here.

Mr. JOHNSEN. Sir, we did an analysis for the current year group, the year group that just completed registration approximately 6 weeks ago, and at that time all but 1.8 percent have been reachable by return letter.

When a young man registers, we send an acknowledgment letter to him, and we can determine how many are deliverable by the ones that don't come back to us from the Post Office.

Senator PROXMIRE. Give me that percentage again?

Mr. JOHNSEN. It is 1.8 percent.

Senator PROXMIRE. So 98.2 percent were reachable.

Mr. JOHNSEN. Yes, sir; that is right.

Senator PROXMIRE. Is that just the first year?

Mr. JOHNSEN. That is the current year group that just finished registering.

Senator PROXMIRE. Do you have any idea of what happened over the years, as the years go by?

Mr. JOHNSEN. Yes; it deteriorates. However, the next year after they register, we send the verification letter to the individuals.

Any record that has not been updated for 15 months, we will send a verification letter to, and we do that to get into that window where the

Post Office forwards the mail. They forward the mail for 18 months. We get into that 18-month window that way, and we keep the addresses up to date. Beyond the year that they are first eligible for induction, the age 20 year group, it does deteriorate somewhat.

We could do an analysis and provide that for the record for the subsequent years.

Senator PROXMIRE. That is very good, if you would provide that for the record.

[The information follows:]

ADDRESS VERIFICATION

Because of budget considerations, we reduced the number of verification letters in 1985 from two to one. That letter is sent during the prime year of eligibility (age 20). This is done to ensure that should an induction notice be necessary, it would reach the inductee.

Our deliverability rate for the prime year group is 99 percent. This rate does deteriorate somewhat for the older age groups, however, as shown in the following analysis of our files:

Age	*Deliverability rate*
19	99.6
20	99.0
21	98.1
22	98.5
23	97.1
24	95.8

This deterioration does not impact significantly on our ability to induct.

MOBILIZATION EXERCISES

Senator PROXMIRE. First, would you describe what a mobilization exercise constitutes, and then I will have a question.

Mr. EBEL. Sir, what we have as mobilization readiness exercises are designed to test our entire operational ability to mobilize.

Senator PROXMIRE. To test your ability in the event that you would have to call on all of your registrants?

Mr. EBEL. Yes.

What we do is involve our 728 Reserve Force officers, who normally drill with us 48 times a year, 2 weeks of annual training, and we use part of that training time to involve them in our exercise. We also call a good percentage of our local board members, who are unpaid volunteers, and then we call on 1,500 National Guard recruiters, who have been identified to join the Selective Service for the first 90 days following the mobilization. What this is designed to do is to let us, over a 2-day period, test the accession of all of our facilities and equipment.

Senator PROXMIRE. How much will these exercises cost in each of the next 2 fiscal years?

Mr. BANISTER. Mr. Chairman, we estimate that for fiscal year 1988, it will cost approximately $150,000 of additional funds to implement the exercise. The exercise that we are implementing at the present time, in this fiscal year, really does not involve any significant additional cost because we are using selected Reserve Forces officers during their drill

and annual training. It does not involve additional military or travel cost.

In 1988, we will have additional costs because we would have to lease the ADP equipment to open up all of the area offices for a 2-day period.

Senator PROXMIRE. Suppose that you were forced to forgo your 1988 mobilization exercises because of budget constraints, what effect would that have on your ability to respond to a total mobilization requirement?

Mr. EBEL. I always have great concern, sir, that the plans that are laid, if they have not been tested, you don't have the opportunity to uncover problems that they might present.

CONTRACTING OUT

Senator PROXMIRE. You indicate in your justification that routine nontechnical tasks at the Data Management Center are contracted out to private firms. What tasks are you referring to?

Mr. JOHNSEN. The tasks that we contract out, actually it is contract in, are for the peaks of our data entry workload. We skim those peaks off by bringing in contract personnel to key in specific projects, and keep up in that fashion. Because we have been able to do that, we have been able to reallocate resources internally to handle the registrant information office that we have staffed.

Senator PROXMIRE. You bring in personnel?

Mr. JOHNSEN. That is right, using government equipment.

Senator PROXMIRE. You bring in Kelly girls, or what?

Mr. JOHNSEN. That type of a service.

Senator PROXMIRE. Are those contracts let on a competitive basis?

Mr. JOHNSEN. Yes, sir.

Senator PROXMIRE. How much will you spend on Data Management Center contracts in fiscal years 1987 and 1988?

Mr. BANISTER. Mr. Chairman, in fiscal year 1987, we estimate about $170,000 will be let in ADP-related contracts, and $176,000 in 1988. However, the data entry contract for these 2 years is estimated to be about $55,000.

Senator PROXMIRE. In last year's House hearings, you stated, for the record, that you could do this kind of work in-house and save 31 percent of the cost of contracting out. If this is the case, why aren't you doing this work with your own personnel?

Mr. EBEL. We have some indications that we probably can achieve even greater savings than the 31 percent, and our intent is to do as much in-house as we are able to do. In-house is our preferred method.

Senator PROXMIRE. What you are saying, then, is that you use your personnel to the maximum extent, but you only have so much; therefore, you have to contract out?

Mr. EBEL. We only have 277 full-time employees.

Senator PROXMIRE. So if you had more personnel, you would save the government money?

Mr. EBEL. Absolutely, assuming a level workload.

Senator PROXMIRE. That is interesting. Can you propose or suggest to us how much more personnel you would have to have, and how much you would save? We would like to see that. It seems to me to be a way we could balance the budget. [Laughter.]

Mr. EBEL. I would be very happy to provide something for the record on that.

[The information follows:]

IN-HOUSE VERSUS CONTRACTOR COSTS FOR DATA ENTRY

The volume of work fluctuates throughout the year. We staff the Data Management Center for optimum productivity, therefore, the employees are constantly stretching to meet rigid performance standards and to stay ahead of the backlogs and remain on schedule. The use of contractor support intermittently during the year, to key the backlogs during peak periods, is cost effective overall in that we can maintain a smaller staff throughout most of the year while still accomplishing our mission in a timely fashion.

During the past fiscal year we conducted an analysis of certain data entry services using contractors (in-house) as opposed to using Selective Service System employees to do the same work. That analysis covered an 8-week period (July 28, 1986, to Sept. 21, 1986) and revealed that the cost for contractor support is about 58 percent higher than using our own employees:

	Salary per hour	Documents keyed per day	Total staff-days used	Documents keyed	Total cost	Cost per document
Contractor	$7.25	352	174	61,250	$10,092.00	$0.165
SSS employees	5.81	448	137	61,250	6,367.76	.104
Differences	1.44	96	37		3,724.24	.061

Mr. EBEL. If I might, sir, the Data Management Center that we are speaking of is located in the greater Chicago area, and about 20 percent of those employees are constituents of yours. The productivity rates are very, very high.

Senator PROXMIRE. Let me get this straight, 20 percent of the people who are in your shop——

Mr. JOHNSEN. The Data Management Center.

Mr. EBEL. Twenty percent of the people at the Data Management Center in the greater Chicago area are actually living in Wisconsin.

Senator PROXMIRE. So if you hired more, you would hire more people from Wisconsin.

Mr. EBEL. I did not say that.

Senator PROXMIRE. It sounds like the best program I have heard about in a long time. I always thought that you would save money by hiring Wisconsin people. We have a great work ethic up there.

MODERNIZATION OF FEDERAL TELECOMMUNICATIONS SYSTEM

In your justification, you refer to the modernization of your federal telecommunications system over the next 3 to 4 years. What will be the total cost of this modernization?

Mr. EBEL. Sir, it should prove to be a savings once it is implemented.

Mr. BANISTER. Mr. Chairman, we are looking primarily at the enhancements that GSA is proposing to the federal telecommunications system, they call it the FTS–2000 system. I believe that recently GSA just went out for bids on that contract. We are not quite certain what the cost will be to the agencies.

We estimate that when that contract is let, it could be in the neighborhood of $100,000 additional cost to the agency in various types of equipment, but GSA expects that in the outyears there will be savings realized.

Senator PROXMIRE. How much will you spend on the project in the current fiscal year?

Mr. BANISTER. Currently, we don't expect to spend anything on the project because GSA has just gone out for bids on the contract.

Senator PROXMIRE. Have you budgeted funds for the project for next year, and if so, how much?

Mr. BANISTER. Mr. Chairman, we did request $100,000 of the Office of Management and Budget for the project, but based on the fact that GSA has not gone out for bids and the fact that the costs are uncertain at this time, we are not asking for those funds in 1988.

Senator PROXMIRE. Can you tell me when savings will be realized from the initiative and how much will be saved in each of the next 5 years?

Mr. BANISTER. I don't know that we have those figures available, Mr. Chairman. GSA has forecast that there will be savings governmentwide. It is part of the overall federal telecommunications system.

Senator PROXMIRE. Provide what you can, for the record, on that.

Mr. BANISTER. I will be happy to.

Senator PROXMIRE. Also submit for the record your time table for installing and implementing your modernized system.

Mr. BANISTER. We will be happy to.

[The information follows:]

IMPLEMENTATION OF FEDERAL TELECOMMUNICATIONS SYSTEM

The implementation of FTS 2000 is planned for fiscal year 1989. The cost to implement are as follows:

National headquarters (voice/data)	$100,000
Regional offices (voice)	14,000
Alexandria Computer Center (data)	15,000
Data Management Center (data)	3,000
Total	132,000

Based on studies conducted by the General Services Administration, projected savings for usage sensitive services using current dollars over the next 5 years is estimated at $224,000. This breaks down as follows:

Fiscal year 1989, no savings; fiscal year 1990, $56,000; fiscal year 1991, $56,000; fiscal year 1992, $56,000; and fiscal year 1993, $56,000.

Senator PROXMIRE. Thank you very much, Mr. Ebel, and gentlemen. I very much appreciate your testimony.

Mr. EBEL. Thank you.

SUBMITTED QUESTIONS

Senator PROXMIRE. We will be submitting some additional questions to you for your response for the record.

[The following questions were not asked at the hearing but were submitted to the Selective Service System for response for the record:]

ADDITIONAL QUESTIONS SUBMITTED BY CHAIRMAN PROXMIRE

GRADED POSITIONS

Question: Mr. Ebel, I note that you are carrying an additional executive service position on your organizational chart this year, giving you a total of four such positions. Furthermore, your 1987 estimate of GS-15 positions has been changed from 12 last year to 15 in your current justification. Why is the Selective Service System increasing its supervisory personnel at this time?

Answer: The Selective Service System has increased its supervisory personnel structure but not in any significant or long-term way. We gained a third Senior Executive Service (SES) position as the end of 1986 when a noncareer appointee was named to the post of Special Assistant to the Director. This position could be cancelled at any time. The estimate of GS-15 positions increased due to the conversion of a military position to a civilian position and upgrading of the Inspector General position to a GM-15.

We have revised the Detail of Permanent Positions to reflect our current and projected staffing level as of this date. (See Chart on next page).

CAPTIAL INVESTMENT

Question: Last year's justification indicated you planned to spend $65,000 on your information technology system capital investment program 1986. Your current capital investment for 1986 has shot up to $301,000. What has happened over the last 12 months to change that estimate so dramatically?

Answer: In Fiscal Year 1986 our postage and telecommunication costs were less than originally estimated. With the savings from these two areas, it was decided to purchase ADP hardware. A Wang VS-65 minicomputer was purchased for the Office of the Controller. This will increase our accounting productivity and printing capability and allow for the production of management reports unique to Selective Service. In addition, the Wang VS-65 can be used as a fully functional, stand alone system if it should become necessary at the time of a mobilization. In addition, the Agency purchased several personal computers and printers. Three major software packages were purchased in Fiscal Year 1986: A ZIP + 4 software package will allow us to sort letters by the nine digit zip code, a software package for the new Area Office Terminal System and a software package that will convert computer language to the language of the IBM mainframe located at the Joint Computer Center.

PURCHASE OF EQUIPMENT

Question: I note that last year's projections for major information technology hardware acquisition costs have been revised sharply upward in this's justification. Last year you planned to spend about $30,000 a year for the purchase of hardware from 1987 through 1991. Your current projections indicate hardware purchase costs of $83,000 in 1987 gradually increasing to $96,000 in 1991. Why have these estimates changed so dramatically?

Answer: The increase in hardware acquisition costs reflects our current best estimate of the cost of modernizing the Selective Service System Dedicated Network System over a two to three year period. This will allow SSS to add more users to the system and upgrade equipment which will allow access to public networks.

SELECTIVE SERVICE SYSTEM

SALARIES AND EXPENSES

DETAIL OF PERMANENT POSITIONS

90-0400-0-1-054	1986 Actual	1987 Estimate	1988 Estimate	1989 Estimate
Executive level IV	1	1	1	1
ES-6	0	1	1	1
ES-5	1	1	1	1
ES-4	0	0	0	0
ES-3	0	1	1	1
ES-2	1	0	0	0
Subtotal	3	4	4	4
GS/GM-15	13	14	14	14
GS/GM-14	15	13	13	13
GS/GM-13	21	22	22	22
GS-12	13	16	16	16
GS-11	23	22	22	22
GS-9	30	28	28	28
GS-8	8	8	8	8
GS-7	23	23	23	23
GS-6	31	30	30	30
GS-5	34	35	35	35
GS-4	29	30	30	30
GS-3	19	20	20	20
GS-2	14	10	10	10
Subtotal	273	271	271	271
Ungraded	1	1	1	1
Total permanent positions	277	276	276	276
Unfilled positions, end of year	-23	-2	-2	-2
Total permanent employment, end of year	254	274	274	274

QUESTIONS SUBMITTED BY SENATOR GARN

HEALTH CARE PERSONNEL

Question: Your statement mentions that you will be seeking legislative authority to permit the development and planning of a standby system for health care personnel.

Please describe generally what you envision in this program and what costs you expect to be associated with such a program?

Answer: The purpose of the legislation is to authorize Selective Service to spend funds to design and develop a standby system to prepare for the post-mobilization registration and classification of persons with essential health care delivery skills. This standby system would dramatically reduce the time it would require Selective Service to call up needed health care personnel in the event of war or national emergency.

In wartime our nation must possess the capacity to provide both additional combat troops and the health care personnel to treat them. While the Military Selective Service Act provides authority to induct young men when ordered by the President and the Congress, as the law now stands, Selective Service lacks authority to even plan for the call up of needed health care personnel. Clearly, the System does not presently have the capability to deliver vitally needed health care personnel in the early days following mobilization.

To solve this acknowledged problem, we propose development of a standby system which includes design, programming and testing of comprehensive data processing systems for registration and compliance requirements and for inductions, claims and appeals processing. Cost estimates for the initial year of development are $1,062,000; second year costs are estimated to be $833,000 to complete program design and development. Continuing costs for program maintenance will be approximately $500,000 per year.

Question: What preliminary reaction have you received from the legislative committees of jurisdiction over this proposal?

Answer: The House Armed Services Committee has indicated that it will take up this measure in a more comprehensive form during mark up the Defense Authorization bill.

IMMIGRATION REFORM

Question: Do you anticipate costs associated with implementing the registration requirements of the new Immigration Reform Act?

Answer: The only costs to the Selective Service System currently associated with implementing the new Immigration Reform Act is the cost of printing two million SSS Form 1's. The cost of printing these forms is $27,000. This was an unprogrammed printing requirement for this Agency to absorb. These forms will be printed by Federal Prison Industries (UNICOR) at the Federal Correctional Institution, Fort Worth, Texas. INS has established at Fort Worth a central printing and distribution center for this new Legalization Program. Our registration Form 1 will be stored and distributed as necessary by INS to its 108 Legalization Centers at no cost to this Agency. Once these forms are completed by the alien, they will then be

mailed by INS to the Selective Service Data Management Center in Chicago for entry into the Selective Service Registration File. INS will also handle the mailing costs associated with the registration.

PROPOSED REGULATIONS

Question: Last year the House expressed concern over proposed regulations affecting those who sought deferments, exemptions, and alternative service. Please outline this issue and its current status.

Answer: We are thoroughly reexamining our regualtions in light of the expressed concerns. Attached is this first phase of the results. Comments received indicate a widespread acceptance for our further revisions.

[CLERK'S NOTE: The information may be found in volume 51, No. 237, pages 44485-44487, of the Federal Register of Wednesday, December 10, 1986.]

NATIONAL CREDIT UNION ADMINISTRATION

STATEMENT OF ROGER W. JEPSEN, CHAIRMAN

ACCOMPANIED BY:

VINCENT TOOLEN, PRESIDENT, CENTRAL LIQUIDITY FACILITY
D. MICHAEL RILEY, DIRECTOR, NCUA'S OFFICE OF EXAMINATION AND INSURANCE
ROBERT M. FENNER, GENERAL COUNSEL
WILLIAM POLING, BUDGET OFFICER

OPENING REMARKS

Senator PROXMIRE. Our final witness is the Honorable Roger Jepsen, Chairman of the National Credit Union Administration.

What great timing. I just announced you, Roger, and in you come. You are fantastic. You must have one of those little transistors in your beautiful head of hair. [Laughter.]

Our final witness is my former colleague and fine Senator. We miss you, Roger, but I am sure you are doing a great job as the Chairman of the National Credit Union Administration. It is good to have you with us today.

Your request is straight forward and noncontroversial. You are proposing a slight reduction in your administrative expenses and a continuation of your current $600 million direct loan limitation.

Go right ahead with your testimony with the knowledge that your prepared statement will be included in the record in its entirety.

Senator JEPSEN. Thank you, Mr. Chairman.

INTRODUCTION OF ASSOCIATES

I have appearing here with me today Mr. Vincent Toolen, immediately to my right, who is President of the Central Liquidity Facility; Mr. Michael Riley, immediately on my left, Director of NCUA's Office of Examination and Insurance; and directly to his left, Mr. Robert Fenner, General Counsel; and then at the end of the table, Mr. William Poling, who is the Budget Officer for the agency.

SYNOPSIS OF STATEMENT

I thank you for having the statement entered in the record as if read. Suffice it to say, Mr. Chairman, that the Central Liquidity Facility is a very valuable tool to maintain the confidence and stability for the general operations of the credit union community in this country. It has served well for 7 years.

Our request for the ceiling on funds is exactly the same as it was 7 years ago, which is about 9 percent of what the statute allows. We believe that this will remain adequate for any future problems.

In addition to supplying emergency funds, the CLF also bolsters public confidence in times of trouble. I am pleased to report that the credit unions are well. We intend to do everything we can to keep them in good health.

With that, Mr. Chairman, we ask you to support our authorization request in order to keep our credit unions functioning smoothly. I will be pleased to respond to any requests or questions that you may have.

[The statement follows:]

STATEMENT OF ROGER W. JEPSEN

Mr. Chairman and members of the subcommittee, thank you for this opportunity to appear before you and present our request for the NCUA Central Liquidity Facility. Appearing here with me today are Vincent Toolen, President of the Central Liquidity Facility; D. Michael Riley, Director of NCUA's Office of Examination and Insurance; Robert M. Fenner, General Counsel; and William Poling, Budget Officer for the agency.

Again this fiscal year we are requesting a $600 million limit on new loans. That requested limit has remained constant for the last 7 years and, I might add, has proven adequate throughout the period. Regarding the CLF's operating expense, we are requesting that the committee consider an $847,000 limitation when approving our portion of the HUD-Independent Agencies budget. This is approximately the same amount we have received approval for over the last 7 years.

I am pleased to report that in the past fiscal year credit unions across this country were again very liquid because of share growth. For the first quarter of this fiscal year all indications are that credit unions will remain fairly liquid for the balance of fiscal year 1987. As we look toward fiscal year 1988, we anticipate nothing at this time that would cause a reversal in credit union growth patterns.

However, should danger signs begin to appear at any time, the Central Liquidity Facility should be prepared to respond. We believe the committee's authorization of a $600 million new loan limit will remain adequate for any future problems. Prudent funds management, coupled with the solid economic foundation of a corporate credit union network, should continue to keep new loan demand well below our request.

At the close of fiscal year 1985, the CLF's outstanding loan portfolio balance was $222 million. By the end of fiscal year 1986, it had been reduced to $106 million. As we move through fiscal year 1987, the loan balance continues to decline. This is a result of credit unions restructuring their balance sheets by reducing their cost of funds and outstanding obligations. At the present rate of payback, it is conceivable that the loan portfolio balance at the close of fiscal year 1987 could be in the $60 to $75 million range. However, the attached schedules do reflect our projection that there will be a slight increase in new loans to credit unions in fiscal year 1987 and fiscal year 1988 as the economy tightens up slightly.

Mr. Chairman, in addition to supplying emergency funds, the CLF also bolsters public confidence in times of trouble. We ask you to support our authorization requests in order to keep credit unions functioning smoothly.

Thank you for the opportunity to appear before the subcommittee to present NCUA's requests for the Central Liquidity Facility. We would be pleased to answer any questions.

TWO-YEAR BUDGET CYCLE

Senator PROXMIRE. Thank you very much.

I might tell you that our treasured colleague, Senator Domenici, was here earlier and he said that he wants every agency to tell us how moving from a 1-year budget to a 2-year budget would affect your operations.

Senator JEPSEN. It would not affect ours at all, and I would, for several reasons, be very favorable and encourage that.

Senator PROXMIRE. You favor moving to a 2-year budget.
Senator JEPSEN. Yes, sir.
Senator PROXMIRE. It would not have any significant adverse effects?
Senator JEPSEN. No, sir.

LOAN BALANCE

Senator PROXMIRE. I am delighted to see that your outstanding loan balance has fallen from $290.4 million in 1984 to $97.4 million as of January 31. I think that this indicates that your credit unions are in good shape, which is, I think, very impressive in view of the problems of our other financial institutions in this country.

Do you see any clouds on the horizon to reverse that trend?

Senator JEPSEN. It is conceivable that the loan portfolio balance at the close of 1987 could be in the $60 to $70 million range; however, we have a rapid growth and tremendous changes taking place in the credit union community today.

With the deregulation, the rapid changes in sophistication, the need for increased sophistication and education in the credit union community, if they reorganize as they have been over the years, merging in some instances, there may be times when the CLF will be brought in to play, to bring about stability. Many times that stability is needed psychologically for a 6-month period. I don't see any long range or permanent increases.

BUDGET REQUEST TO OMB

Senator PROXMIRE. Does the budget request before us today coincide with your initial request to OMB? If not, can you tell us how it differs?
Senator JEPSEN. It does coincide.
Senator PROXMIRE. There are no increases or decreases?
Senator JEPSEN. No.

ADMINISTRATIVE EXPENSES

Senator PROXMIRE. As your statement points out, Roger, you are requesting an $847,000 limitation on CLF's administrative expenses. Although this is a decrease of $3,000 below current estimates, when compared to actual fiscal 1986 expenditures, it is an increase of $123,000. Is this simply intended to give you breathing room or are you experiencing substantial administrative cost growth?

Senator JEPSEN. I would defer this to the President of the CLF to address.

Mr. TOOLEN. Mr. Chairman, our current budget reflects a full complement of personnel. In previous years, both 1986 and 1987, we were staffing up, and consequently many of those costs are reflected in personnel, fringes, and associated administrative support. That increase is just a slight buildup.

EXAMINATION CYCLE

Senator PROXMIRE. Last year, you indicated that the examination cycle for credit unions was 12 months. Has the agency been able to adhere to that schedule?

Senator JEPSEN. Ninety-nine percent, Mr. Chairman. I have to add the caveat, or confession, that the quality of examinations is not what it ought to be, and not what it is going to be.

When you have approximately 1 examiner for every 43 units compared to 1 for every 2 for the Comptroller of the Currency, and 1 for every 9 for FDIC, it is a little tough to go in and examine a $50 million-plus credit union in 19 hours, which in some instances we have to do to meet that schedule of an annual examination. We are working very hard and we have increased our training tremendously. We are looking to remedy this.

It is a long answer to your question, but I want to elaborate very honestly on it. Yes, we have met the schedule, but the examinations are not the quality that they ought to be and that they are going to be.

EXAMINER STAFF

Senator PROXMIRE. I understand that you had 356 active examiners in 1986. Has that changed at all?

Senator JEPSEN. We have received approval from OMB for an additional 205 examiners, and that is over a 2-year period. Yes, that is on the increase, as well as the education and training that goes with it. We are running on 12 cylinders on our 8-cylinder engine down there.

Senator PROXMIRE. Do you feel that this is sufficient to adequately examine the 17,000 credit unions noted on page 12 of your justification?

Senator JEPSEN. We feel that that number of personnel, in our projections and plans, accompanied by the increased technology changes and updating, will enable us to do the job.

PROMOTIONAL AND EDUCATIONAL TRAVEL

Senator PROXMIRE. Mr. Toolen, the budget request indicates that a significant amount of promotional and educational travel is anticipated next year, and I quote, "Since CLF membership is voluntary, and CLF operations are centralized." How much of the $40,000 included for travel in the budget request will be used for these purposes?

Mr. TOOLEN. Just about all of it, Mr. Chairman, because the 42 separate corporates are in different states, and it is important that we maintain contact with them to understand their operations, and what it is that they are trying to accomplish. So I would anticipate that almost all of that would be for that exact purpose.

Senator PROXMIRE. I just have one more question, and then I will defer to the other Senator from Iowa.

How does this compare with current estimates and last year's expenditures?

Mr. TOOLEN. Currently, our operating expenses stay relatively constant. We are spending for operations now somewhere around $64,000 a month in round numbers.

Senator PROXMIRE. What I had in mind was the travel.

Mr. TOOLEN. It is on the same par. We are pretty consistent. We have increased. We introduced in the 1988 budget our estimates of the effect

of the increase in the GSA travel regulations, and that is the reason for the cost increase. It is only the effects of those changes. The increased per diem allowance and hotel allowance, and so forth. Otherwise, we would probably have maintained the exact same amount.

Senator PROXMIRE. Senator Grassley.

ADMINISTRATION REQUIREMENTS

Senator GRASSLEY. Mr. Chairman, before I ask three or four questions, I want to explain my absenteeism, which was a result of my participation in the D.C. hearing which was meeting simultaneously with this one.

I would first of all ask in the way of questions of either Senator Jepsen or his staff, are you required to use the administration's economic assumptions in preparing your estimates of program demand?

Senator JEPSEN. We are not required, no.

STATUS OF DIRECT LOANS

Senator GRASSLEY. Also, looking at the table on page 8 of your justification, your status of direct loans, one could say that there is a 3-year trend of increasing balances in direct loans outstanding. Is this of any concern to you, or do you believe that this data reflects minor fluctuations well within the normal range of activity?

Mr. TOOLEN. Senator, it clearly reflects the balances that are well within the range of our activity. Currently, the trend right prior to this period was on the increase, and now we are on the decrease. I would anticipate that as the market tightens up within the next year or two, we would see some slight increase in borrowing.

Senator GRASSLEY. I am not implying that it should be of concern, but in summary, it is not anything to be concerned about, and you consider it normal?

Mr. TOOLEN. Yes; that is correct.

ECONOMIC CLIMATE OF CREDIT UNIONS

Senator GRASSLEY. I would refer to the statement that my friend, Senator Jepsen, made, and it notes the projected increase in new loans to credit unions result from the economy tightening up slightly. Could you give me some elaboration, or describe that to me as you see it, to some extent?

Senator JEPSEN. We have experienced in the agricultural areas, which you are very well aware of, some economic problems, and our credit unions have not escaped those. We also have credit unions that are experiencing some problems in the areas where energy—gas and oil—play a key role.

As the economy tightens up slightly in these areas, and it has been tight for some time, as you know, in the rural areas, there are times when the CLF may have to play a rather substantial role as the loaner of last resort and as a stabilizer until we can work these things out.

Senator GRASSLEY. As your description goes, then, it would be fair for me to assume that the problems you just described seem to be very similar to the problems that were caused for our commercial banks in these areas, the energy areas and the agricultural areas of the Midwest. It is very much the same rationale.

Senator JEPSEN. The same factors dramatically affect us, certainly.

Senator GRASSLEY. There are no factors that are unique to credit unions.

Senator JEPSEN. As a matter of fact, we are less affected because of the historic operation of credit unions, which has largely been in the consumer loan area. It has been a good position to be in, in the loan area, to have a hundred loans of $300 apiece, rather than one loan for $300,000 in the last several years.

The credit unions, therefore, have not suffered as much repercussions from the economic woes as have some of our sister institutions. It gives me no great pleasure to say that, but we have been in a good position under the circumstances, the best position that we could be in.

CLOSING REMARKS

Senator PROXMIRE. Thank you, gentlemen, for so ably representing that four-letter word, Iowa.

Senator JEPSEN. Mr. Chairman, if I may, I realize that the subject is not within the subcommittee's jurisdiction, nevertheless I do wish personally to commend you for the introduction earlier this week of the Competitive Equality Banking Act. NCUA is especially pleased by the credit union title in this measure, and most importantly, we thank you for seeking to revive our agency's vital conservatorship authority. We have a very real, urgent need that it be reestablished as quickly as possible. We thank you for the total inclusiveness and comprehensiveness of your bill.

Senator PROXMIRE. Thank you very much, I appreciate that. The bill is controversial in part, but that part of it is going to survive and become law. I think that it will pass the Senate within a month or so, and I hope that we can get it through the House and get it to the President. That particular section is solid, and there is no question about that. Others may be amended in, or amended out. It gives us much more strength.

Senator JEPSEN. I thank you for your words of encouragement, Mr. Chairman.

SUBMITTED QUESTIONS

Senator PROXMIRE. Before we close, Roger, we have a few questions we would appreciate your responding to for the record.

Senator JEPSEN. Be glad to.

[The following questions were not asked at the hearing but were submitted to the Administration for response for the record:]

Questions Submitted by Senator Proxmire

STAFFING LEVEL REQUEST

Question: CLF's current personnel budget totals $232,000 for five permanent positions. The budget request includes $228,000 - - a slight reduction in this year's budget - - for the same number of positions. What's assumed in the reduction next year?

Answer: There was a slight error in last year's estimate due to adjustments having to be made as a result of Gramm-Rudman-Hollings.

PRINTING AND REPRODUCTION COSTS

Question: Mr. Toolen, although you are estimating $9,000 this year for printing and reproduction costs as well as an identical budget in fiscal 1988, actual expenditures last year only totalled $1,000. Why do you think you'll need these additional funds?

Answer: Printing and reproduction costs have been primarily associated with annual and quarterly reports as well as with basic forms and general circulars to members. These costs dropped substantially from previous years because the quantity of annual reports were reduced and quarterly reports eliminated entirely. It is anticipated that the annual reports will be increased and that forms and circulars to members will be reordered as supplies are depleted. Quarterly reports may be reinstated.

OTHER SERVICES REQUEST

Question: The $479,000 included in the request for Other Services is roughly 57% of CLF's administrative expenses. How much of this will be used next year for agent reimbursement?

Answer: Agent reimbursement will amount to $390,000 or 81% of $479,000.

Question: How does this compare with current estimates?

Answer: This compares to current estimates of $384,000 and the FY 1986 actual expense of $382,200.

Question: Can you tell us what else is covered under Other Services?

Answer: CLF's $72,000 expense for its share of Washington Office salaries and $17,000 in expenses for consulting, medical, payroll and data processing services.

SUBCOMMITTEE RECESS

Senator PROXMIRE. The subcommittee stands in recess until Friday, February 27, when we will hear from the Consumer Product Safety Commission, the Pueblo, Colo., Consumer Information Center, and the Office of Consumer Affairs.

[Whereupon, at 11:17 a.m. Friday, February 20, the subcommittee was recessed to reconvene at 10 a.m. Friday, February 27.]

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT-INDEPENDENT AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1988

FRIDAY, FEBRUARY 27, 1987

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:10 a.m. in room SD–124, Dirksen Senate Office Building, Hon. William Proxmire (chairman) presiding.

Present: Senators Proxmire and Grassley.

CONSUMER PRODUCT SAFETY COMMISSION

STATEMENT OF TERRENCE SCANLON, CHAIRMAN

ACCOMPANIED BY:
ANNE GRAHAM, VICE CHAIRMAN
CAROL G. DAWSON, COMMISSIONER
THOMAS W. MURR, JR., DEPUTY EXECUTIVE DIRECTOR
LEONARD DEFIORE, EXECUTIVE DIRECTOR
JOHN MACKEY, GENERAL COUNSEL

Senator PROXMIRE. The committee will come to order.

First I want to apologize for being tardy, but I had another commitment that I had to make, and this was the best I could do.

Our first witness is Terrence Scanlon, Chairman of the Consumer Product Safety Commission. He is accompanied by Commissioner Carol Dawson and Vice Chairman Anne Graham.

None of you fellows look like Carol Dawson or Anne Graham. [Laughter.]

There they are.

INTRODUCTION OF WITNESSES

Mr. SCANLON. Here they are, Mr. Chairman. On my far right is, in person, Vice Chairman Graham. On my immediate right is Commissioner Dawson. On the far left, is Mr. John Mackey, the Acting General Counsel. Next to John is Dr. Leonard DeFiore, the Executive Director, and on Len's right is Mr. Tom Murr, the Deputy Executive Director of the Commission.

BUDGET REQUEST

Senator PROXMIRE. The Consumer Product Safety Commission is requesting an appropriation of $34,400,000 in fiscal year 1988, an increase of $300,000 above the current appropriation of $34.1 million. The Commission is also requesting an additional $496,000 for retirement costs in fiscal 1987.

Commissioner Scanlon, we have received your prepared statement, so please feel free to summarize, with the understanding that your complete statement will be printed in the record in full. If Commissioners Dawson and Graham wish to highlight their statements, we will be pleased to hear from them, also.

Their complete statements, of course, will be placed in the record, also. So Commissioner Scanlon, go right ahead.

SUMMARY OF STATEMENT

Mr. SCANLON. Mr. Chairman, I will summarize. Thank you. The Commission request for fiscal year 1988, which has been adopted in conjunction with the Office of Management and Budget, is for $33,014,000 and 519 FTE's. In addition, the fiscal year 1988 funding request before you also includes $1,386,000 to cover additional costs mandated under the Federal Employees Retirement System Act of 1986, bringing the total appropriations request to $34,400,000.

The fiscal year 1988 budget request reflects three important goals of the Commission: One, it fully funds the three priority projects which have been selected for intensive work during the year; two, it provides for an expansion of the import surveillance project; and three, it enhances public information services mandated under section 5 of the Consumer Product Safety Act.

PRIORITY PROJECTS

The priority projects. The priority projects for fiscal year 1988 were selected by the Commission after careful review and the consideration of public comments provided in an open hearing. Those projects that showed substantial potential for achieving safety-oriented results within a reasonable time were selected. They are as follows:

No. 1, all-terrain vehicles. The Commission has reports of at least 644 ATV-related fatalities between 1982 and November 6, 1986. There were an estimated 85,900 emergency room treated injuries associated with ATV's in 1985 and an estimated 86,000 in 1986. The Commission has considered regulatory and nonregulatory options for ATV's based on the recent report of its ATV task force.

Resources being sought for ATV work in fiscal year 1988 will be used, among other things, to support development of performance standards and public education efforts on ATV's.

No. 2, riding mowers. There were an estimated 100 deaths associated with riding mowers and garden tractors in each of the years 1983, 1984, and 1985. In 1985, these products were involved in an estimated 50,000 medically attended injuries.

In fiscal year 1988, currently contracted work on a computer simulation model to assess the dynamic stability of riding mowers will be completed and updated. Hazard and economic data will be updated. Laboratory tests will continue and the staff will begin the development of specific engineering test procedures for a standard.

No. 3, child drownings in residential swimming pools. Death and injury data have shown that children, probably the most vulnerable segment of our population, have been at substantial risk. For example, in 1983, the latest year for complete information on deaths, an estimated 480 persons drowned in residential swimming pools in the United States, of whom about half were children under 5 years of age.

In 1985, an estimated 3,000 submersion injuries to children under 5 were treated in hospital emergency rooms.

In fiscal year 1988, the Commission will consider the findings of a contract review of potential pool alarm/detection systems, conduct four regional conferences around the United States for state and local officials on the latest findings and recommendations concerning child drownings, and develop and disseminate a checklist for improving safety for young children using backyard pools.

IMPORT SURVEILLANCE

Mr. Chairman, a major goal of this Commission in fiscal year 1988, as reflected in this budget request, is increased import surveillance. This is proposed as a means of addressing potential safety hazards before the products in question are distributed nationwide, using state laboratories where possible to provide on-site testing and analysis.

We expect not only to identify an increased number of violative or defective products, but also to identify them more quickly.

In addition to other import surveillance activities, the agency will coordinate its efforts with the U.S. Customs Service. Such an arrangement will allow us to identify, inspect, and sample importers and products previously unknown to the CPSC.

PUBLIC INFORMATION

The Commission's goal of improving public information services will be accomplished by shifting resources within the consumer information program.

Increased funding would be provided for the Hotline, the printing of pamphlets and brochures, associated mailing costs, and to improve the regional offices' capacity to respond to requests for information.

Among the important functions of public information services, the recall/alerts project deserves special mention because of its value to the Commission in warning the public about precise hazards and remedies.

ONGOING ACTIVITIES

In addition to the particular projects emphasized in this request, the ongoing program efforts of this agency remain integral to its mission. They are included in the overall programs for hazard identification and

analysis, hazard assessment and reduction, compliance, and enforcement and consumer information.

As an example, in a typical year, approximately 200,000 product-related injury reports are processed through the national electronic injury surveillance system. This system estimates the frequency and severity of product-related injuries.

As another example, each year, about 1,500 in-depth injury investigations are conducted under the provisions of section 15 of the Consumer Product Safety Act. This section requires manufacturers, distributors and retailers to report potentially hazardous products to the Commission; 157 such reports were filed in fiscal year 1986. There were 95 corrective actions under section 15 during 1986 involving a variety of products.

VOLUNTARY STANDARDS

This agency has successfully pursued the development of voluntary standards in widely diverse product areas in conjunction with industry.

There were 33 major project areas studied during the last fiscal year. Some of these were aimed at the development of new standards. Others were aimed at improving existing standards.

The CPSC staff continues to work with industry groups and consumer groups as ongoing voluntary standards projects go forward. We will carefully monitor these projects to determine both progress and effectiveness.

CIGARETTE SAFETY

Although the cigarette fire safety program is not a part of the budget request, I would like to report to you that the funding you have previously provided for this program will carry it to completion by December of this year. The final report to Congress on this study is expected to be submitted this fall, followed by any appropriate policy recommendations within two more months.

Mr. Chairman, it is a pleasure to appear before the subcommittee in support of the CPSC's budget for fiscal year 1988. I would be pleased to answer any of your questions.

PREPARED AND PERSONAL STATEMENTS

I also have a personal statement and would like to give that to you at the appropriate time.

Senator PROXMIRE. Fine. Thank you very much, Chairman Scanlon for a very helpful statement.

Mr. SCANLON. Thank you, Senator.

[The statements follow:]

Opening Statement of Terrence Scanlon

Mr. Chairman:

It is a pleasure to appear before the Subcommittee today, with my Consumer Product Safety Commission (CPSC) colleagues, in support of our appropriations request for Fiscal Year 1988.

The Commission request, which has been adopted in conjunction with the Office of Management and Budget, is for $33,014,000 and 519 FTEs. In addition, the FY 1988 funding request before you also includes $1,386,000 to cover additional costs mandated under the Federal Employees Retirement System Act of 1986, bringing the total appropriations request to $34,400,000.

In developing this overall budget request, we have reviewed all aspects of the Commission's responsibilities. Budget constraints consistent with mandated performance levels have become not only a necessity for all Federal agencies, but also a worthy goal in the face of persistent national deficits. Such constraints can cause difficult choices between widening Agency opportunities and the constant need to reassess current requirements. We have diligently sought to achieve this balance of resources and needs, believing this request will allow us to meet our obligations and to carry out the tasks assigned to us by Congress. The details of these funding decisions are set forth specifically as part of the budget request before you.

First, Mr. Chairman, realizing that the structure of the Commission is expected to be reviewed this year by our authorizing Committees in both the House and Senate, this proposed budget continues the limitation on compensation funds for Commissioners so that only three Commissioners may serve in FY 1988. This limitation is the same as the one adopted by this Subcommittee last year and would coincide with the number of commissioners actually on board. Staffing for most other Commission offices will be maintained at approximately the 1987 level, including regional office staffing.

This FY 1988 budget request reflects three important goals of the Commission:

1) it fully funds the three priority projects which have been selected for intensive work during the year;

2) it provides for an expansion of the Import Surveillance Project, and

3) it enhances public information services mandated under Section 5 of the Consumer Product Safety Act.

PRIORITY PROJECTS

The priority projects for FY 1988 were selected by the Commission after careful review and the consideration of public comments provided

at an open hearing. Those projects that showed substantial potential for achieving safety-oriented results within a reasonable time were selected. They are as follows:

1. All Terrain Vehicles (ATVs) -- During FY 1988 the Commission will continue the activities approved in FY 1987, as part of this important project. Since our injury surveillance projections in 1984 indicated the severity of this problem, the Commission, with the concurrence of this Subcommittee, has devoted substantial resources to a detailed study of ATV technical data and characteristics. This has included a hazard analysis, an exposure survey, completion of engineering, human factors, and medical analyses, and monitoring the industry's development of a voluntary standard. The Commission has reports of at least 644 ATV-related fatalities between 1982 and November 6, 1986. There were an estimated 85,900 emergency-room treated injuries associated with ATVs in 1985 and an estimated 86,000 in 1986. The Commission has considered regulatory and non-regulatory options for ATVs, based on the report of its ATV Task Force.

Resources being sought for ATV work in FY 1988 will be used, among other things, to support development of performance standards and public education efforts on ATVs.

2. Riding Mowers -- FY 1988 will be the fourth year that the Commission has accorded priority status to the riding mower project. The need for it is reflected in the death certificate data for 1983, 1984, and 1985. These figures showed an estimated 100 deaths associated with riding mowers and garden tractors in each of those years. In 1985, these products were involved in an estimated 50,000 medically attended injuries.

In FY 1988, the currently contracted work on a computer simulation model to assess the dynamic stability of riding mowers will be completed and updated. Hazard and economic data will be updated. Laboratory tests will continue, and the staff will begin the development of specific engineering test procedures for a standard. The Commission will continue to work with the Outdoor Power Equipment Institute Working Group to coordinate efforts aimed at reducing deaths and injuries associated with riding mowers.

3. Child Drownings in Residential Swimming Pools -- This is a project that was given priority status in 1987 following its initiation in 1986. Death and injury data have shown that children, probably the most vulnerable segment of our population, were at substantial risk. For example, in 1983, the latest year of complete information on deaths, an estimated 480 persons drowned in residential swimming pools in the United States, of whom about half were children under five years of age. In 1985, an estimated 3,000 submersion injuries to children under five were treated in hospital emergency rooms. About 80 percent of those cases were serious enough to require hospitalization. Death by drowning in residential swimming pools is the fourth leading cause of accidental death in children under five in the United States.

In FY 1988, the Commission will consider the findings of a contract review of potential pool alarm/detection systems, conduct four regional conferences around the United States for State/local officials on the latest findings and recommendations concerning child drownings, and develop and disseminate a checklist for improving safety for young children using backyard pools.

IMPORT SURVEILLANCE

Mr. Chairman, a major goal of this Commission in FY 1988, as reflected in this budget request, is increased import surveillance. This is proposed as a means of addressing potential safety hazards before products are distributed nationwide, using State laboratories where possible to provide on-site testing and analysis.

We expect not only to identify an increased number of violative or defective products, but also to identify them more quickly. FY 1988 will be the first full fiscal year in which all aspects of this project will be in place.

In addition to other import surveillance activities, the Agency will coordinate its efforts with the U. S. Customs Service. The CPSC will provide Customs both the product areas for which there are existing field compliance programs or which are of special concern to the Commission and the names of previously violative foreign manufacturers of these products. Customs will, in turn, provide CPSC with names of previously unknown importers of these products, and will provide identification of shipments of products from previously violative manufacturers.

Such an arrangement will allow us to identify, inspect, and sample importers and products previously unknown to CPSC. It will enhance inspection and sampling of suspected products from chronic violators. Hence, we feel this project will significantly improve and quicken the import surveillance responsibility of this Agency.

PUBLIC INFORMATION

As we look ahead to the next fiscal year, the Commission's goal of improving public information services will be accomplished by shifting resources within the Consumer Information program. The program still remains the Commission's smallest both in terms of dollars and FTEs. That portion of the program to be strengthened addresses CPSC's ability to respond to information requests from those outside of the Commission.

Increased funding would be provided for the Hotline, printing of pamphlets and brochures, associated mailing costs, and to improve

the regional offices' capacity to respond to requests for information. A strong case can be made that helping to develop an informed public is a cost-effective way to prevent many deaths and injuries associated with product use.

The activities carried out by Public Information Services, in addition to the Hotline and responding to incoming requests, include recall announcements and safety alerts, media relations, the daily newslog, and Freedom of Information Act activities.

Among these important functions, the recall/alerts project deserves special mention because of its value to the Commission in warning the public about precise hazards and remedies. These safety alerts are always brief and usually product specific. We find them to be used extensively and effectively by newspapers and other media outlets.

ONGOING ACTIVITIES

Mr. Chairman, in addition to the particular projects emphasized in this request, the ongoing program efforts of this Agency remain integral to its mission. They are included in the overall programs for Hazard Identification and Analysis, Hazard Assessment and Reduction, Compliance and Enforcement, and Consumer Information.

As an example, in a typical year approximately 200,000 product-related injury reports are processed through the National Electronic Injury Surveillance System (NEISS) which is part of Hazard Identification and Analysis. This system estimates the frequency and severity of product-related injuries, providing basic support for Commission action addressing most product hazards. NEISS is the only government-wide system designed to provide such estimates. The information developed by this system is shared with the National Institute for Occupational Safety and Health (NIOSH), The Center for Disease Control (CDC), and the Environmental Protection Agency (EPA). Approximately $700,000 is expected to be collected from these Agencies to offset the increased cost of collecting NEISS data specific to their needs.

As another example, each year, about 1,500 in-depth injury investigations are conducted under the provisions of Section 15 of the Consumer Product Safety Act (CPSA), as part of its Compliance and Enforcement effort. This section requires manufacturers, distributors, and retailers to report potentially hazardous products to the Commission; 157 such reports were filed in FY 1986. Corrective actions under Section 15 during 1986 (there were 95) involved such things as playground equipment, bunk beds, small household electrical appliances, cordless telephones, infant strollers, and various other children's items.

VOLUNTARY STANDARDS

This Agency has successfully pursued the development of voluntary standards in widely diverse product areas in conjunction with industry.

Standard development usually follows a multi-year Commission effort to collect data regarding deaths and injuries resulting from a hazard, conduct extensive product testing and data analyses, and to achieve a mutually agreeable standard which all parties find effective and reasonable. There were 33 major project areas studied during the last fiscal year. Some of these were aimed at the development of new standards. Most were aimed at improving existing standards.

The CPSC staff continues to work with industry groups and consumer groups as ongoing voluntary standards projects go forward. We will carefully monitor these projects to determine both progress and effectiveness. The Commission continues to devote the majority of its hazard program resources to these activities, believing that in most cases results can be obtained in an expeditious manner at the least expense to the taxpayer.

CIGARETTE SAFETY

Although the Cigarette Fire Safety program is not a part of the budget request, I would like to report to you that the funding you have previously provided for this program will carry it to completion by December of this year. The 1984 act that created this interagency study provided that the Chairman of CPSC would serve, ex officio, as Chairman of the Interagency Committee on Cigarette Safety. It did not specifically vest responsibility for this program with CPSC or any other Agency. However, the funding has been provided as a part of the CPSC budget. The final report to Congress on this study is expected to be submitted this fall, followed by any appropriate policy recommendations within two more months.

CONCLUSION

The format for our budget document this year contains substantial narrative, in addition to the usual charts and figures. As a result, there will be more detailed explanations, within the budget document itself, of each funding request.

Mr. Chairman, again, it is a pleasure to appear before the Subcommittee in support of the CPSC budget for Fiscal Year 1988. I would be pleased to answer any questions.

70-539 - 87 - 3

PERSONAL STATEMENT OF TERRENCE SCANLON

MR. CHAIRMAN:

With your permission, I would like to add a few personal observations to the statement that I just read outlining the Consumer Product Safety Commission's budget request for Fiscal Year 1988.

Mr. Chairman, so that you and your colleagues are in a better position to judge the worthiness of the Commission's request, permit me to outline some of the CPSC's recent accomplishments.

In the enforcement area, in fiscal 1986, civil penalties collected came to $250,000--less than in 1985, but higher than in five of the preceding eight years. Also, regulated product recalls, which totalled 77 in fiscal 1986, were higher than four of the previous five years. And the total number of recalls, 172, compares favorably with the totals in each of the previous five years.

Some of these recalls, I might add, were particularly notable. Last fall, for instance, one company agreed to refund the purchase price of approximately 1.6 million crib toys to resolve Commission concerns that these toys might pose a strangulation hazard. About the same time, another firm, in what could be the most costly recall (to the manufacturer) in the CPSC's history, agreed to replace almost 1.5 million rather expensive robot toys, or parts thereof, because they were found to violate the Commission's lead paint standard. And then there was the case involving McDonald's which was in the midst of giving away Lego's plastic building blocks as part of a sales promotion. It was apparent to me, when I saw those blocks being distributed, that they could wind up in the hands of children under 3 who could choke on them. Luckily, no children had suffered strangulation injuries up to that point, but the potential for harm was clearly evident and, when the Commission brought this possibility to McDonald's attention, the firm quickly agreed to exchange these blocks for larger ones.

In addition to these recalls, which could cost the manufacturers millions of dollars in several instances, the Commission staff also completed its comprehensive evaluation of all-terrain vehicles (ATVs). The report of the Commission's All-Terrain Vehicle Task Force, which was completed on schedule on September 30, 1986, paved the way for Commission consideration of regulatory and enforcement options that could be applied to ATVs. That report, I might add, was the product of 18 months work and roughly $2 million in expenditures, both large figures for any agency the size of ours. Other Commission actions of note in recent months include: (1) publication of a proposed rule on methylene chloride, a chemical solvent used in paint strippers and spray paints; (2) issuance of an enforcement policy on the labeling of certain consumer products containing asbestos; and (3) a decision to continue involvement in the development of adequate voluntary standards for pressed wood products (containing formaldehyde). In all, the Commission has voted on over 30 matters of concern since I reassumed the Chairmanship last July 17th.

In the area of state and local cooperation, considerable progress has been made as well. On September 16, 1986, a memorandum of understanding was signed with the National Conference of States on Building Codes and Standards (NCSBCS), paving the way for mutually beneficial exchanges of information in the critical area of home safety. Then, in November, a very successful conference with our state designees was held to help promote cooperative activity on product safety problems of mutual concern. Not only was this the first such conference in 6 years, but as a consequence of it, 104 cooperative work plans have been submitted by 44 states, the District of Columbia and 2 territories. When implemented, these plans will advance a number of CPSC projects at little or no additional cost to the Commission.

Last, but certainly not least, several major consumer education efforts have borne fruit in recent months. In September, a joint press conference with the Juvenile Products Manufacturers Association was held to promote safer use of nursery equipment. Then, in November, the Commission and the Toy Manufacturers Association conducted a press conference on toy and holiday safety that generated extensive nationwide press coverage. And, just last month, the Commission conducted a press conference on home heating safety. We take no responsibility, however, for the first of the big snows that occurred here the next day.

I could go on, Mr. Chairman, but I think these highlights demonstrate that the Commission made significant contributions to consumer product safety in 1986. And with your help, plus the help of many interested state, local and private organizations, we will do so again in 1987.

Thank you very much.

STATEMENT OF COMMISSIONER DAWSON

Senator PROXMIRE. Commissioner Dawson, do you have a statement you would like to make?

Ms. DAWSON. Yes, I do, Mr. Chairman, which I will submit for the record, but if you will permit, I would like to make a few short remarks.

The Commission has worked very hard to come up with what we consider to be a very realistic budget, keeping in mind the effort to keep down federal spending while, at the same time, providing the resources needed to fulfill our statutory mandate. In keeping with that goal, we have also made a conscious decision to reduce the number of priority projects from six to three. This will let us concentrate on those projects and, at the same time, give us some flexibility to address new product hazards that may later develop. If we are going to respond to as yet unknown hazards in a timely manner, we will need to have such flexibility.

CHILD DROWNINGS

One of the priorities that we selected for the 1988 budget is child drownings, as the Chairman has already mentioned. I feel the Commission will have a significant role in developing this issue. The fact that almost 300 children a year die in backyard residential pools is something which is becoming a national problem and the Commission can make a significant effort in finding ways to reduce that national toll.

MOVE TO BETHESDA

Another feature of this budget, Mr. Chairman, is the fact that at long last the Commission voted to move its downtown offices and consolidate in Bethesda. We accomplished that in November and December of this past year, and that will save us around $300,000 a year.

VOLUNTARY STANDARDS

I would also like to mention voluntary standards, to which the Chairman has also alluded. I firmly believe in the participation of the Commission in the development of voluntary standards. However, at times we need to be more selective in looking at those voluntary standards to make sure that, with our limited resources, our staff is not involved in too many such efforts. I intend to make it my business to make sure that those voluntary standards are, indeed, issues in which significant safety hazards are involved.

I am pleased to be here in support of this budget. It is lean, but it is realistic, and I am delighted to answer any questions you may have.

[The statement of Carol G. Dawson follows:]

STATEMENT OF COMMISSIONER CAROL G. DAWSON

Mr. Chairman, some federal agencies might argue that they need more, not less, in their budgets in order to undertake this or that laudable activity.

But the Commissioners recognize the desirability of holding down federal spending. That is why we have submitted a budget request that is within the Administration's overall budget-cutting framework but that also provides the Commission with the resources it needs.

We are proposing to allocate those resources to a reduced number of priorities compared to previous years. This was a conscious decision by the Commission to afford the agency more flexibility in addressing product safety issues. In the past, we found that funding larger numbers of designated priority projects restricted the agency's ability to act quickly to address unexpected safety issues. As new products are marketed, or as we learn about emerging hazards, the Commission should have the flexibility to respond, in a timely manner, in keeping with its mandate.

One of those priorities for fiscal year 1988, as it is in FY 1987, is child drownings in residential swimming pools. This is a subject in which I have taken a particular interest. The Commission's recent emphasis on the subject can be traced to May of 1985, when we cosponsored a National Pool and Spa Safety Conference. This gathering served to highlight the tragedy of child drownings and near-drownings. As a result of that conference, the Commission joined with other interested organizations to form an ad hoc steering committee to implement specific conference recommendations on pool and spa safety. The Commission continues to work through that panel to promote pool safety. But it is also focusing on specific agency projects to identify areas where we might be effective in reducing the unacceptably high numbers of deaths and serious injuries due to swimming pool accidents.

There are many other projects detailed in the budget document before you. In order to carry out those tasks but keep the budget request to a minimum, the Commission has taken several steps to streamline its operations and cut expenditures. For instance, the Commission has, at long last, moved the Commissioners and their personal staffs from downtown Washington, D.C. to Bethesda, Maryland, where the rest of the Headquarters staff has been since the agency's creation. I urged this consolidation since my arrival at the Commission over two years ago. The move will save the Commission about $300,000 a year in rental costs alone. It has also led to an improvement in Commission interaction with the staff and a more efficient allocation of staff time and resources.

As the Commission seeks to make the fullest use of its limited resources, we must not overextend our staff when it comes to voluntary standards. Voluntary standards are certainly desirable, and we continue to work with industry and standards-setting organizations to develop effective voluntary standards to protect the public. But the Commission has two levels of involvement in the creation of voluntary standards: monitoring their development, and participating in the crafting of those standards. The former role is that of an observer, while the latter requires an expenditure of precious resources. I have long argued that voluntary standards should be just that: voluntary. Their formulation should be done by the private sector without federal interference unless the Commission determines that our involvement is needed to address a specific and serious hazard. Commission participation in voluntary standards development, then, should be the exception and not the rule, and should be done only after a deliberate Commission decision to participate.

We have also pinpointed cuts and adjustments in operating costs, while funding all functions necessary to carry out the mission of the agency. Our FY 1988 budget request is lean, to be sure, but realistic. That is as it should be. The American taxpayer demands fiscally restrained, prudent, and accountable government, and I believe the Commission's budget for FY 1988 meets those demands.

PREPARED STATEMENT

Senator PROXMIRE. Thank you, Commissioner Dawson.

Does anybody else have a statement they would like to make?

Ms. GRAHAM. Mr. Chairman, I have submitted my statement for the record. I appreciate the opportunity to be here today. One matter of concern that I would note for the record is that for all practical purposes, the Commission has been reduced to a three-member body. Therefore, the quorum requirement needs to be changed from three to two. I would be happy to try to answer any questions you have.

[The statement of Anne Graham follows:]

STATEMENT OF COMMISSIONER ANNE GRAHAM

Mr. Chairman, I appreciate the opportunity to appear before this subcommittee on behalf of the Consumer Product Safety Commission's appropriations request for FY 1988. I fully concur with the overall budget request as submitted.

Our overall priority project program has my strong support, however, in my opinion the Commission's most important undertaking is the priority project for all-terrain vehicles (ATVs). Although the ATV project undertaken by the Commission is far from complete, we have made tremendous progress in understanding the operating characteristics and vehicle dynamics of these popular but technically complex recreational vehicles.

It is evident, though, that the project will require further investigation, and the Commission has rightly deemed this an important priority project for FY 1988. Given the quality of the technical evidence presented to the Commission thus far, and the professional caliber of the staff involved with the ATV Task Force, I believe your committee can be assured that our work on ATVs will be concluded efficiently and effectively.

With regard to the current debate on the appropriate structure of the agency I would note that efforts to limit the scope of the Federal Government with regard to unnecessary intrusion are commendable and needed. However, the limit of this tenent is the point where the government in general or in this case the Consumer Product Safety Commission stops executing its charter most effectively.

I believe there are significant benefits for supporting a collegial structure at the Consumer Product Safety Commission. Many of those benefits - both practical and philosophical - have been addressed in the General Accounting Office report. Given the fact that there appears to be no overriding criteria which would militate against the collegial structure, I believe a modification of the Commission's statutory structure to that of a standing three member body, with a quorum requirement of two, would retain the outstanding strengths of flexibility, independence and diversity of opinion inherent in the collegial system, and would provide most, if not all, of the advantages identified by the General Accounting Office on behalf of a single administrator. A three member body should expedite decision-making and implementation of decisions. A two member quorum would provide each Commissioner more accountability and would strengthen the ability of the body to resolve issues on the agenda expeditiously. Also, expenditures would be substantially reduced from those of the current structure, both in absolute terms,

and in relation to the size of the agency already under reasonable, yet real fiscal restraints.

Thus, I must conclude that a three member body with a two member quorum provides the diversity, independence and credibility necessary to best serve the American public.

Mr. Chairman, our budget is lean and efficient. I believe that if we are provided with the appropriations we have requested, the Commission will be able to fulfill its mandate of protecting the public from unreasonable risks associated with consumer products.

Thank you, Mr. Chairman.

Senator PROXMIRE. Senator Grassley, would you like to make a statement, sir?

Senator GRASSLEY. No; but I will have a series of questions I want to ask.

Senator PROXMIRE. Very good.

TWO-YEAR APPROPRIATION BILLS

Commissioner Scanlon, Senator Domenici attended our first hearing of this subcommittee, and he made a very helpful suggestion. As you know, Senator Domenici was the Chairman of the Budget Committee and a very fine chairman, and he has suggested that we explore the possibility of passing 2-year appropriation bills.

Would that approach create any particular problem for the Commission, or do you see a benefit in having to justify your budget only once every 2 years?

Mr. SCANLON. I would support that recommendation. It would be very helpful to us, particularly with projects in the health sciences area, such as methylene chloride and things of that nature. Generally, for us to come to a resolution to the safety problem, it takes a minimum of 2 years.

GAO REPORT

Senator PROXMIRE. Chairman Scanlon, as you know, the General Accounting Office recently concluded its review of the agency's administrative structure. I understand the study was requested by the House authorizing committee, which wondered whether the agency's functions might be more efficiently carried out by a single administrator rather than a commission.

They also questioned whether it should retain its separate status or be folded into an existing department of the executive branch. Apparently, the agency's regulatory duties and responsibilities are similar to other health and safety agencies which were headed by single administrators. Although GAO made no recommendation regarding the Commission's independent status, it did recommend a statutory change to provide for a single administrator. Do you concur?

Mr. SCANLON. I do concur, Senator Proxmire. The GAO report that you have referenced indicated that all former CPSC Chairmen endorse the single administrator concept. I think it would be much less time consuming for the Commission to address public safety issues if such a concept was adopted. I also think it would be less expensive. GAO indicated that there would be a cost savings of about $1 million. Their report also indicated that all major studies during the past 50 years, including the Hoover Commission report, identified problems relating to internal governance with all collegial bodies.

Senator PROXMIRE. Do you agree with the GAO, Commissioner Dawson?

Ms. DAWSON. No, Mr. Chairman, I disagree with what the Chairman just said.

The GAO draft report has some arguments in it that favor the continuation of the collegial system. The theory behind the collegial system is that it provides independence, it provides stability, and it provides for a diversity of opinion. I think that the theory is still valid. The fact that there are problems in procedures doesn't necessarily negate the concept. In my experience on the Commission, the fact that we have an ability to exchange ideas and reach a consensus on important issues is a strength that we need to preserve.

Senator PROXMIRE. Vice Chairman Graham?

Ms. GRAHAM. I agree with Commissioner Dawson.

CIGARETTE SAFETY

Senator PROXMIRE. Commissioners, Chairman Scanlon, as you pointed out in your prepared testimony, the cigarette fire safety program will be completed by December of this year. It will not require any further funding as a part of your budget. According to the table on page 9 of your presentation, you are currently spending $600,000 on that program.

How many staff-years will the Commission be devoting to the cigarette fire safety program in fiscal year 1987?

Mr. MURR. In fiscal year 1987, we have approximately three and one-half FTE's, mostly involved with the coordination of cigarette safety activities, acting as the secretariat for the full interagency committee, the setting up of meetings, filing of reports, et cetera. There is very little technical work from CPSC staff.

Senator PROXMIRE. How do you plan to use the staff currently working on the cigarette fire safety program when the program ends?

Mr. SCANLON. The only thing that will remain after the program ends will be some testing which will be provided by or provided at the National Bureau of Standards.

That testing may take 2 or 3 years after the completion of the work.

Senator PROXMIRE. The question is, how would you utilize the people who are working on that program now? Would they be all involved in the testing?

Mr. SCANLON. No. At the Commission, we only have one person, one full-time person, working on cigarette safety. That person serves as the coordinator of the interagency task force, which is the working group which reports to the group which I head.

That employee is in our Office of Program Management, and he would be assigned other duties.

TOY SAFETY CONFERENCE

Senator PROXMIRE. Chairman Scanlon, perhaps you can clarify a few things regarding a toy safety news conference which I understand the agency and representatives of the toy industry hold every December.

For how many years has the agency and the industry been co-hosting such an event?

Mr. SCANLON. Five years, Mr. Chairman.

Senator PROXMIRE. You don't regard associating in this manner with an industry regulated by the Commission as improper, or perhaps too cozy? I don't want to appear overly critical, but I know these conferences have been critized by consumer associations and I am interested in hearing your comments.

Mr. SCANLON. I would be happy to provide comments.

Annually, some $12.8 billion worth of toys are sold. About 57 percent of these toys are sold in the last quarter of each calendar year. At these annual toy conferences, a very good safety message is imparted.

At the same time, the Commission distributes a list of all the recalls of toys that have occurred in the previous 12 months. We also distribute a list of voluntary corrective action plans, which gets wide press coverage. The cost to the Commission of the conference held last November totaled just under $5,400 dollars; $3,450 of those expenses were for items that will be used once again.

For the record, Mr. Chairman, I would like to provide just a few clips out of our daily news logs from about every major paper in the country showing the coverage, the safety message, that is given with this kind of press conference.

[The information follows:]

[From the Chicago Tribune, Wednesday, Nov. 19, 1986]

TRAIN, ROBOT TOP TOY BLACKLIST

WASHINGTON [UPI]—The Romper Room Animal Train and the robot Voltron lead the 1986 parade of unsafe toys taken off store shelves before Christmas, Consumer Product Safety Commission officials said Tuesday.

Chairman Terrence Scanlon said the commission and the Toy Manufacturers of America, which co-sponsored the annual news conference promoting Christmas toy safety, "have been actively working to see that accidents involving toys are kept to an absolute minimum" this year.

There were more than 123,000 minor accidents and 22 deaths involving toys last year, he said.

The commission urged parents to select toys that match the age, skills and abilities of their children; look for sturdy construction in toys; frequently check toys to assure no damage has occurred after rough play; and keep children from using riding toys near pools, stairs and streets.

The commission, which promotes voluntary safety standards for toys, said 51 toys on the market have been recalled this year, including three in the past 10 days.

Thirty-two toys were recalled because of small parts that can cause strangulation or choking in young children. The others were taken off the market for various reasons, including risk of fire and lead poisoning.

Scanlon said the Romper Room trains were recalled Tuesday. About 5,600 trains were sold since June, 1985, primarily by Pathmark stores and Rite-Aid stores in states east of the Mississippi River. The trains, which cost about $2.40, have three loose round parts that can cause choking in young children who try to eat them.

Last week, the commission announced the recall of the colorful Voltron, a metal robot. Scanlon said Tuesday parents absolutely should not purchase the toy because the paint has a high lead content. Voltrons, which cost $60 to $90, are being exchanged by the manufacturer in Moonachies, N.J.

Playthings rejected by safety commission

United Press International

Recalled toys and children's products that violate safety standards of the Consumer Product Safety Commission:

Dancing Clown Musical Jewel Box, Jabor International, Inglewood, Calif.; Baby Dolls [Item 12088], Milton D. Meyer & Co., Carnegie, Pa.; Personalized Wooden Train Toy, Lillian Vernon Corp., Mt. Vernon, N.Y.; Pacifiers ["Baby Brand Soother" and "Chupete"], Dan Brechner & Co. Inc., Floral Park, N.Y.

Wooden Boat with Blocks and Figures, Marion Creations Inc., Long Island, N.Y.; Lovely Fish Toy [Item UB 161-1], Meijer Inc., Grand Rapids, Mich.; Clatterpillar Pull Toy [Model KC2320], International Playthings, Bloomfield, N.J.

Sweatshirts with LED Lights, TMR International Inc., New York; Musical Rocking Horse [Model E4216], Enesco Imports Corp., Elk Grove Village, Ill.; Various Wooden Toys, V.B.I. Inc., San Francisco; Ambi Jack-in-The-Ball [Model E153], Childcraft Educational Corp., Edison, N.J.; Boy's BMX Bicycle [Model 2246-T RMX-800], Roadmaster Corp., Olney, Ill.

Mini Doll with Pacifier, Westminster Export Co., Atlanta; "Little Red Wagon" [Model 75], Cardinal Industries Inc., Long Island, N.Y.; Chupones Baby Pacifier, Gonzales Wholesale Imports, Houston; Skateboards, Vanflex of California, Chatsworth, Calif.; 8½-inch Rag Mop Bear Boy & Girl Plush Toy Model 8300, Madison Ltd., Hackensack, N.J.

Talking Animal Book No. 56061, Chadwick Miller, Canton, Mass.; Thing-A-Ma-Jig Rattle No. 036, Xevex Corp., Braintree, Mass.; Child's Robe [Style 1868], The Company Store, LaCrosse, Wis.; Merry Go Round Rattle [61980], Artsana of America Inc., New York.; Toy Corn Broom [Item 100], Come Play Products Co., Worcester, Mass.

Child's 100 percent Wool Robe [Style 962], The Company Store, Minneapolis; Omar Full Size Crib, Puck Children's Furniture, Miami; 10-Speed Bicycle, Benotto, Miami; 7-inch My Pumpkin Doll [Item 6058], S&H Wholesale Corp., E. Syracuse, N.Y.; Teething Bead Necklace, Electro Plastics Inc., Port Newark, N.J.

Hardwood Toy Fire Truck [No. 5044], Marlon Creations, Long Island, N.Y.; Bunny Hopper Pendant [Item EJ 14], Treasure Masters Corp., Derry, N.H.; Winnie the Pooh Crib Exerciser, Smurf Crib Exerciser, Musical Bells Crib Gym; Danara International Ltd., Hackensack, N.J.

Big Barrel, Magic Clown, Big Bead Rattle, F.J. Strauss Co. Inc., North Bergen, N.J.; Sweat suits for children [Style 4061], Chung Kai Industries Inc., Richmond, Calif.; Teether-Rattles [Model XG-6015 and X-4162], Amway Corp., Ada, Mich.; 6-inch Sleeping Doll, F.A.O. Schwarz, New York; 6-inch Baby Joy Doll, McCrory Corp., York, Pa.; New Born Baby Doll, Greenman Brothers, Farmingdale,

---

[From USA Today, Nov. 19, 1986]

Playing It Safe With Toys

By Bill Kilpatrick

WASHINGTON — The Romper Room Animal Train, with its small, ingestible parts, and the robot Voltron, decorated with lead-based paint, are among toys saftey-minded Santas won't leave under the tree this Christmas.

The toys are among 51 potentially harmful toys the U.S. Consumer Product Safety Commission has recalled in the last 13 months.

The commission reported Tuesday that from Oct. 1, 1985, to Sept. 30, 1986, more than 123,000 USA youngsters were involved in toy-related accidents — 22 of them fatally; most by choking to death.

Chairman Terrence Scanlon said 32 of the 51 recalled toys had parts that were easily ingestible and presented potential choking hazards.

But the commission said most accidents involving toys stem not from defects but because of carelessness or misuse.

Scanlon outlined several safety points adults should keep in mind regarding children and toys.

The pointers:

- Pick toys consistent with the child's age, skills and abilities.
- Store toys intended for an older child in places where a younger child can't get at them.
- Make certain toys are ruggedly built and that, in normal use, they aren't likely to come apart, be torn, snapped or broken.
- Check to be sure all parts are secure.

For example, make certain a teddy bear's plastic or glass eyes can't be pulled off and swallowed.

- Keep kids on riding toys away from stairs, pools and the street.
- When not in use, toys should be stowed away so they won't be stepped on or fallen over.

[From the New York Times, Nov. 20, 1986]

THE GIFT OF SAFETY ALONG WITH TOYS

WASHINGTON, Nov. 19 (UPI) — The Romper Room Animal Train and the Voltron robot are two of the unsafe toys recently taken off store shelves, the Consumer Product Safety Commission has announced.

The commission chairman, Terrence M. Scanlon, said his agency and the Toy Manufacturers of America, co-sponsors of an annual news conference promoting Christmas toy safety, "have been actively working to see that accidents involving toys are kept to an absolute minimum" this year. Toys were involved in more than 123,000 minor accidents and 22 deaths last year, he said.

To avoid injury or death, the commission urged parents to select toys that match the age, skills and abilities of their children. The agency said they should look for sturdy construction, frequently check toys for damage after rough play and keep children from using riding toys near pools, stairs or streets.

The commission, which promotes voluntary safety standards for toys, said 51 toys have been recalled this year, including 3 in recent days. Thirty-two were recalled by manufacturers because of small parts that could choke young children. The others were taken off the market for a variety of reasons, including risk of fire and lead poisoning.

Americans for Democratic Action, a liberal political group that compiles its own list of hazardous toys before each Christmas, asserted that the commission puts "the whole burden" of selecting safe toys on parents and other purchasers. The commission does not ban toys, the group said, but instead expects consumers to remember hazardous warnings about hundreds of toys.

"Parents and purchasers have a part of the burden, but not the whole burden," said Ann Brown, head of the group's consumer affairs committee. "We need a much more active Consumer Product Safety Commission. We need more mandatory standards. Our current standards are inadequate and need to be enlarged."

Mr. Scanlon said Tuesday that about 5,600 Romper Room trains have been sold since June 1985, primarily by Pathmark and Rite Aid stores in states east of the Mississippi River. The trains, which cost about $2.40, have three loose round parts that can choke young children who try to eat them.

Last week, the commission announced the recall of the colorful Voltron, a metal robot. Mr. Scanlon said Tuesday that parents absolutely should not purchase the toy, because the paint has a high lead content. Voltrons, which cost $60 to $90, are being exchanged by the manufacturer in Moonachie, N.J.

Barbara Bush, the wife of Vice President George Bush, joined Mr. Scanlon in urging that wisdom and safety be kept in mind when selecting toys.

"We the buyers still bear the final burden," she said. "Try to become your own safety expert when you shop. Imagine how the youngster will use the toy."

[From the Cleveland Plain Dealer]

AGENCY WARNS PARENTS AGAINST UNSAFE TOYS

By Judy Grande, PD Bureau

WASHINGTON — Santa arrived early again this year in the nation's capital, just in time for the Consumer Product Safety Commission to release its annual list of do's and don'ts for the holiday shopping season.

With a choir caroling, and little children dancing, about 40 boys and girls from two D.C. schools cheered and applauded yesterday as Santa Claus came to town and with the help of Barbara Bush, wife of the vice-president, gave them "safe" presents.

In the midst of the festivities, in the ballroom of the Willard Hotel, Commission Chairman Terrence Scanlon and Bush urged parents to carefully examine toys before they are purchased to see if they are sturdy and match the age and skill of the child.

Last year, there were more than 123,000 accidents involving toys. Twenty-two children died from toy hazards that included choking on balls, balloons and marbles, strangling on crib toys and suffocating under a stuffed toy or getting caught in a toy chest.

"Try to become your own safety expert when you shop," said Bush. "Imagine how the youngster will use the toy. . . . Do you think the toy will take abuse in the coming months or will it somehow come apart and create even more problems?"

During the eight weeks between Halloween and Christmas last year, nearly $7 billion worth of toys were sold in the United States.

Working with the Toy Manufacturers Association, the commission provided a list of recommendations for parents: Select toys that match the age, skills and abilities of your child; keep in mind that toys intended for older children can harm younger ones; look for sturdy construction in a toy and check it frequently to assure it has not been damged; make sure all small parts are secure; never let children with a riding toy play near a pool, stairs or the street; avoid toys that shoot or propel objects; and make sure toys are stored when not in use so they will not cause a fall.

During the holiday party, a representative of the consumer affairs committee of Americans for Democratic Action criticized the commission for being too passive when it comes to protecting children from unsafe toys. Ann Brown said there are plenty of toys on store shelves that are hazardous yet continue to be sold. She said the committee will present a list of those toys at a news conference in two weeks.

She said the hazards include sharp points, flammability, and projectiles.

Brown said that the commission should ban certain toys, such as skateboards and hanging crib toys. The commission recommends that protective clothing be worn by riders of skate boards and that hanging crib toys be removed when an infant is 5 months old, or when it begins to lift itself up on its knees.

Scanlon, in response to questioning by reporters, said the commission recalls all hazardous products and did so 68 times last year. The most recent was yesterday, when the commission recalled the Romper Room Animal Train No. H732R, manufactured by Electro Plastics, Inc., because three small balls in the train were found to present a choking hazard to children. No injuries from the toy were known.

Also recently recalled for small parts choking hazards were an Electro Plastics Teething Bead Necklace; a Hardwood Toy Fire Truck, 5044, manufactured by Marlon Creastions; and the 7-inch My Pumpkin Doll, item 6058, manufactured by S&H Wholesale Corp.

What may be the largest recall in commission history is also ongoing. It involves the popular Voltron robot, 1.5 million of which have been selling for between $60 and $90. The robots made in Taiwan contain high lead contents in their paint. Those from other countries, such as Japan and Hong Kong, do not contain excessive lead.

For parents with questions, the manufacturers' association has booklets available free of charge. "The ABC's of Toys & Play" and "Learning About Labels" can be obtained by sending your name and address to Toy Booklets, PO Box 866, Madison Square Station, N.Y., N.Y. 10010.

The commission also has booklets available which can be obtained by calling a toll-free hotline, at 800-638-CPSC.

[Publication unidentified]

Officials Stressing Toy Safety as Holiday Buying Gets Started

WASHINGTON — (AP) — Americans will spend more than $7 billion on toys by Christmas, and Barbara Bush is urging that they make safety a major concern in choosing those purchases.

Barbara Bush

"We need to anticipate how youngsters will use a toy," the wife of Vice-President George Bush said Tuesday at the Consumer Product Safety Commission's annual toy safety news conference.

If this year is like 1985, about $7 billion worth of toys will be sold between Halloween and Christmas, said commission Chairman Terrence Scanlon.

He said about 123,000 children were treated in hospital emergency rooms for toy-related injuries last year — mostly minor cuts and bruises. But some accidents were fatal, including incidents of children choking on small toys or parts, strangling on crib toys and being run over by vehicles while riding tricycles and other toys.

The safety commission has published a booklet called "Which Toy for Which Child: A Consumer's Guide for Selecting Suitable Toys."

It comes in two versions: for ages birth-5 and for ages 6-12, and can be obtained by calling the commission at 800-638-2772, or by writing the Office of the Secretary, Consumer Product Safety Commission, Washington, D.C. 20207.

[From the Boston Herald, Nov. 19, 1986]

BUY SAFE TOYS FOR KIDS' SAKE

WASHINGTON — Americans will spend more than $7 billion on toys by Christmas, and Barbara Bush is urging that they make safety a major concern in choosing those purchases.

"We need to anticipate how youngsters will use a toy," the wife of Vice President George Bush said yesterday at the Consumer Product Safety Commission's annual toy safety press conference.

Dangerous sharp points and edges, flying pieces and loud noises may not seem like Christmas concerns. But Safety Commission experts urged parents to keep those and other potential hazards in mind when shopping for gift toys.

Safety Commission Chairman Terrence M. Scanlon noted that 123,000 children were treated in hospital emergency rooms for toy-related injuries last year — mostly minor cuts and bruises.

But some accidents were fatal, including incidents of children choking on small toys or parts, strangling on crib toys and being run over by vehicles while riding tricycles and other toys.

Elaine Tyrrell, Safety Commission project manager for children's products, stressed heeding the age label recommendations on toys.

In addition, Tyrrell pointed out that toy balloons, either deflated or broken, can easily strangle a youngster. And she also warned against crib toys on strings for certain children.

> "123,000 children were treated for toy-related injuries last year."

The Safety Commission has issued a variety of safety suggestions. These include:

- Check for sturdy toy construction, and when buying soft toys make sure the eyes, nose and other attached parts are secure.
- When buying for infants and toddlers, avoid items with small parts they may put in their mouth or long strings which could get twisted their necks.
- Arrows or darts used by children should have soft cork tips, rubber suction cups or other protective devices. Make sure these tips are securely attached.
- Electric toys with heating elements should be given only to children over age 8, and then only with adult supervision.
- Avoid toys that shoot or propel objects which could injure eyes. —AP

[From the Joliet, Ill., Herald News, Nov. 25, 1986]

Toy Selection Key To Safety for Kids

Last year, 103,000 children under the age of 15 were treated in hospital emergency rooms for injuries associated with toys.

Most of the toy-related injuries happened when the victims were hit by toys, or fell off, over, or into them.

Another large category of injuries involved putting small toys or parts of toys into the mouth, nose or ears.

Most toy-related injuries are minor, but 22 people died last year in toy accidents.

The U.S. Consumer Product Safety Commission and the Toy Manufacturers of America are getting toy safety information out to consumers before the heavy Christmas buying season begins.

They recommend these guidelines for selecting a safe toy:

■ Select toys to suit the age, skills, abilities and interests of the individual child. Not all toys are age labeled or provide explanations of why they may be inappropriate or even hazardous for children younger than the recommended ages. Use any labeling information as a guide.

The commission has developed a guide that consumers may use in selecting the appropriate toy for the age of the child. The guide, "Which Toy For Which Child: A Consumer's Guide for Selecting Suitable Toys," is available to the public in two booklets, one for ages birth through 5 and the other for ages 6 through 12. Write U.S. Consumer Product Safety Commission, Washington, D.C. 20207.

■ Look for sturdy construction. When buying soft toys for young children, make sure you purchase a well-made item with eyes, nose and any other small parts tightly secured.

■ For infants and toddlers, avoid toys with small parts that children may put in their mouths and long strings or cords that may cause strangulation.

■ Arrows or darts used by children should have soft cork tips, rubber suction cups or other protective tips. Check to be sure the tips are securely attached to their shafts.

■ Electric toys with heating elements are recommended only for children over 8 years old, and only as long as there is adult supervision.

■ Avoid toys that shoot or propel objects that may injure eyes or get lodged in throats.

■ Check instructions for clarity. They should be clear to you, and, when appropriate, to the child.

Parents also need to take precautions about supervision when children are playing with toys, and maintaining and storing the toys.

■ Keep all toys with small parts away from children under the age of three, as well as children who still put toys in their mouths.

■ Teach older children to keep their toys away from younger children.

■ Keep children playing with riding toys away from stairs, traffic or pools.

■ Examine toys regularly for jagged or sharp edges or missing pieces.

■ When toys are not in use, store them where they will not be stepped on or tripped over.

[From the St. Louis Post-Dispatch, Wednesday, Nov. 19, 1986]

Barbara Bush Stressing Toy Safety on Holidays

WASHINGTON (AP) — Barbara Bush urged parents Tuesday to put themselves in their children's place when shopping for Christmas toys.

"Try to become your own safety expert when you shop. We need to anticipate how youngsters will use a toy ... whether it will take abuse or somehow come apart," said Bush, the wife of vice president George Bush. She spoke at the Consumer Product Safety Commission's annual toy safety news conference.

Toy safety and regulations have improved markedly in recent years, but many injuries still occur, and the final responsibility for choosing a safe toy always rests with the parent, Barbara Bush said.

"There are 36 very seductive (shopping) days left, and I want to use them wisely for the little ones that I love," she said.

Unlike private groups that tend to endorse or denounce specific toys, the safety commission instead offers more general advice on what to look for and buy.

Most toy-related injuries in the last year have been minor cuts and bruises, although 22 fatalities were reported, the commission said.

The most common cause of death was choking on balls and marbles, listed in five cases. In four instances, children were struck by vehicles while they were riding toys or tricycles.

Choosing toys for the proper age group is repeatedly stressed by the safety commission, which has pointed out that many toys carry labels recommending the age group for which they are intended.

Other recommendations from the commission:

▶ Check for sturdy toy construction; when buying soft toys, make sure that the eyes, nose and other attached parts are secure.

▶ When buying for infants and toddlers, avoid items with small parts that infants may put in their mouth or long strings that could get twisted around their necks.

▶ Make sure that arrows or darts used by children have soft cork tips, rubber suction cups or other protective devices. Ensure that these tips are securely attached.

▶ Give electric toys with heating elements only to children older than 8, and then only with adult supervision.

▶ Avoid toys that shoot or propel objects that could injure eyes.

Various books and pamphlets are available for parents seeking more information on toy and child safety.

The safety commission has the booklet "Which Toy for Which Child: A Consumer's Guide for Selecting Suitable Toys." It comes in two versions, for ages birth through 5 and for ages 6 through 12. It's free from the Office of the Secretary, Consumer Product Safety Commission, Washington 20207.

Toy Train Recalled As Choking Hazard

WASHINGTON (AP) — The Romper Room Animal Train is being recalled because small parts could pose a choking danger to children, the federal Consumer Product Safety Commission announced Tuesday.

About 5,600 of the trains were sold, primarily in Pathmark and Rite-Aid stores in states east of the Mississippi. They cost about $2.40 each.

Involved is the Romper Room Animal Train No. H732R. Consumers should discard the trains or return them to the retailer for a refund, the commission said.

[From the Berkshire, Mass., Eagle, Nov. 19, 1986]

SAFETY GROUP: SELECT TOYS WITH CARE

WASHINGTON (UPI) — The Romper Room Animal Train and robot Voltron lead the 1986 parade of unsafe toys taken off store shelves before Christmas. Consumer Product Safety Commission officials said yesterday.

Chairman Terrence Scanlon said the commission and the Toy Manufacturers of America, which cosponsored the annual news conference promoting Christmas toy safety, "have been actively working to see that accidents involving toys are kept to an absolute minimum" this year.

More than 123,000 minor accidents and 22 deaths involved toys last year, he said.

To avoid injuries and death, the commission urged parents to select toys that match the age, skills and abilities of their children, look for sturdy construction in toys, frequently check toys to assure no damage has occurred after rough play, and keep children from using riding toys near pools, stairs or streets.

51 toys recalled

The commission, which promotes voluntary safety standards for toys, said 51 toys on the market have been recalled this year, including three during the last 10 days.

Thirty-two toys were recalled by manufacturers because of small parts that can cause strangulation or choking in young children. The others were taken off the market for a variety of reasons, including risk of fire and lead poisoning.

Americans for Democratic Action, a liberal political group that compiles its own list of hazardous toys before each Christmas, criticized the commission for putting "the whole burden" of selecting safe children's toys on parents and toy purchasers.

The commission does not use its authority to ban toys but expects consumers to remember hazardous warnings issued against hundreds of toys, the group said. "Parents and purchasers have a part of the burden but not the whole burden," said Ann Brown, head of the ADA's consumer affairs committee. "We need a much more active Consumer Product Safety Commission. We need more mandatory standards. Our current standards are inadequate and need to be enlarged."

Romper Room recalls

Scanlon said the Romper Room trains were recalled yesterday. About 5,600 trains were sold since June 1985, primarily by Pathmark and Rite-Aid stores in states east of the Mississippi River. The trains, which cost about $2.40, have three loose round parts that can cause choking in young children who try to eat them.

Last week, the commission announced the recall of the colorful Voltron, which is a metal robot. Scanlon said yesterday that parents absolutely should not purchase the toy because the paint has a high lead content. Voltrons, which cost between $60 and $90, are being exchanged by the manufacturer in Moonachie, N.J.

[From the San Francisco Examiner, Nov.19, 1986]

CONSUMER OFFICIALS URGE SAFETY FIRST IN GIFT TOYS

By Randolph Schmid
ASSOCIATED PRESS

WASHINGTON — Consider whether those darling toys beckoning from the store window are safe and sturdy before buying them as Christmas gifts, federal safety experts are urging.

"Nothing should spoil one of the real highlights of this time of year — the sight and sound of children happily playing with their new toys," Consumer Product Safety Commission Chairman Terrence M. Scanlon said Tuesday, at the agency's annual Christmas toy safety press conference.

Most parents are pretty careful about what they buy, but there is still a need for annual reminders, added Barbara Bush, the vice president's wife.

"In spite of all that's been done through the years to make toys safer, the final responsibility always rests with parents," she said. "It's up to us to shop wisely and to evaluate the safety of the toys we're buying our children and grandchildren before we bring them home."

Scanlon stressed the importance of choosing toys that are appropriate for the age of a child and said the safety commission had issued two new pamphlets to help parents.

The booklets, "Which Toy for Which Child: A Consumer's Guide for Selecting Suitable Toys," come in versions for ages birth through 5 and for ages 6 through 12. They can be obtained free of charge by calling the commission at 800-638-2772, or writing the Office of the Secretary, Consumer Product Safety Commission, Washington, D.C., 20207.

Some 123,000 children were treated in hospital emergency rooms for toy-related injuries last year, Scanlon said. Most of the injuries were minor cuts and bruises, but 22 accidents were fatal, including incidents of children choking on small toys or parts, strangling on crib toys and being run over by vehicles while riding tricycles and other toys.

To help parents and other adults buying toys, the commission offered these safety tips:

- Check for sturdy toy construction, and when buying soft toys make sure the eyes, nose and other attached parts are secure.
- When buying for infants and toddlers, avoid items with small parts the children may put in their mouths or long strings that could get twisted around a child's neck.
- Arrows or darts used by children should have soft cork tips, rubber suction cups or other protective devices. Make sure these tips are securely attached.
- Electric toys with heating elements should be given only to children over age 8, and then only with adult supervision.
- Avoid toys that shoot or propel objects that could injure eyes.

[From the Walla Walla, Wash., Union Bulletin, Nov. 23, 1986]

HAZARD DEEMED NOT NEWS

On Nov. 12, I was informed by concerned relatives who had watched a national news broadcast that there was a recall of Voltron Lion toys made in Taiwan.

Not knowing the details, I eagerly waited for the news to appear in the Walla Walla Union-Bulletin. By Friday, no news had appeared so I called the paper for information.

I was told the news story had come over the wire but the U-B chose not to publish it probably because of lack of space.

Voltron toys made in Taiwan have been recalled because the lead in the paint exceeds the safety standards set by the Consumer Product Safety Division. By calling the toll-free number, 1-800-445-8697, the toys in your possession will be determined safe or unsafe. If they are unsafe, the Voltron manufacturers will mail a postage-paid package so you might return the toys to the company and they will be replaced with safe toys for your children.

I really hope the U-B will honestly examine their outlook on hazardous materials and question themselves on how eager they would have been to publish a news story if it had been a chemical spill or a hazard due to spraying of chemicals.

Here we have a seemingly harmless toy within our homes that our children are playing with daily, and its safety standards were not deemed newsworthy.

Judy Weidert
P.O. Box 307
Athena

[From the Bridgeport, Conn., Telegram, Nov. 29, 1986]

USE COMMON SENSE

Each year at this time, consumer advocacy groups caution the public about the hazards of toys they might purchase for holiday gift-giving. Naturally, the most vociferous is the U.S. Consumer Product Safety Commission.

The commission is doing its usual fine job again during this pre-Christmas and pre-Chanukah season. Chairman Terrence Scanlon prefaces his counsel to buyers with the ominous declaration that 22 deaths and 123,000 minor accidents last year involved less-than-safe toys. And, he adds, 51 toys on the market have been recalled so far this year.

But the commission can do little more than recall potentially harmful playthings from the market and take legal action against manufacturers. And so it cautions adults to be wary about items they are contemplating buying.

Barbara Bush, wife of the vice president, placed the ultimate responsibility where it belongs: Squarely on the public. Her message is important: "We, the buyers, still bear the final burden." She urged consumers to "try to become your own safety expert when you shop."

Toy-buying consumers comprise a potentially powerful lobby. If shoppers refuse to purchase dangerous items, the toy-manufacturing industry will get the message and stop offering products which can maim, poison or fatally injure their young owners.

[From the Brooklyn, N.Y., Daily Challenge, Nov. 24, 1986]

COMMISSION WARNS OF UNSAFE TOYS FOR 1986

By Tamara Henry

WASHINGTON — With the holiday season fast approaching, the Consumer Product Safety Commission lists 51 toys on this year's market recalled for safety reasons, including three during the last 10 days.

In an annual report on toy safety before the busiest buying season, commission Chairman Terrence Scanlon said Tuesday that his agency and the Toy Manufacturers of America "have been actively working to see that accidents involving toys are kept to an absolute minimum" this year.

Toys were involved in more than 123,000 minor accidents and 22 deaths last year, Scanlon said at a news conference.

"If at all possible," he said, "nothing should spoil one of the real highlights of this time of year — the sight and sound of children happily playing with their new toys."

The commission, which promotes voluntary safety standards for toys, said 51 items on this year's U.S. market have been recalled, including three in the last 10 days.

Thirty-two toys were recalled by manufacturers because of small parts that can cause strangulation or choking in young children, the panel said. Others were taken off the market for a variety of reasons, including risk of fire and lead poisoning.

To avoid injuries and death, the commission urges parents to select toys that match ages and abilities of their children, to look for sturdy construction in toys, to check toys frequently to assure no damage has occurred after rough play, and to keep children from using riding toys near pools, stairs or streets.

Americans for Democratic Action, a consumer group that compiles its own list of hazardous toys, denounced the commission Tuesday for putting "the whole burden" of selecting safe toys on consumers.

Ann Brown, head of the ADA consumer affairs committee, criticized the agency for merely issuing warnings and not using its authority to ban risky toys. She charged the commission is "in bed" with the industry, pointing to Tuesday's joint news conference with the Toy Manufacturers of America.

"We need a much more active Consumer Products Safety Commission," Brown said. "We need more mandatory standards. Our current standards are inadequate and need to be enlarged."

Scanlon said Romper Room Animal Trains were recalled Tuesday. About 5,600 of the toys were sold since June 1985, primarily by Pathmark stores and Rite-Aid stores in states east of the Mississippi River. The trains, which cost about $2.40, have three loose round parts that can cause choking in young children.

Last week the commission announced a recall of the colorful Voltron robot because its paint has a high lead content. Scanlon said Voltrons, which cost between $60 and $90, can be exchanged with the manufacturer in Moonachie, N.J.

[From the Philadelphia Inquirer, Nov. 27, 1986]

SAFE TOYS: GUIDELINES FOR PARENTS

WASHINGTON — Barbara Bush has urged parents to put themselves in their children's place when shopping for Christmas toys.

"Try to become your own safety expert when you shop. We need to anticipate how youngsters will use a toy . . . whether it will take abuse or somehow come apart," the wife of Vice President Bush said at the Consumer Product Safety Commission's annual toy-safety news conference last week.

The commission's safety recommendations include:

- Read toy labels for age-group recommendations and buy toys intended for your child's age group.
- Check for sturdy toy construction, and when buying soft toys make sure that the eyes, nose and other parts are securely fastened.
- When buying for infants and toddlers, avoid items with small parts that they might put in their mouths or long strings that could get twisted around the child's neck.
- Electric toys with heating elements should be given only to children over age 8, and they should be used only with adult supervision.

Here is a list of recalled toys and children's products that the commission says violate its safety standards:

Dancing Clown Musical Jewel Box, made by Jabor International, Inglewood, Calif.

Baby dolls Item 12088, Milton D. Meyer & Co., Carnegie, Pa.

Personalized Wooden Train Toy, Lillian Vernon Corp., Mount Vernon, N.Y.

Pacifiers ("Baby Brand Soother" and "Chupete"), Dan Brechner & Co. Inc., Floral Park, N.Y.

Wooden Boat with Blocks and Figures, Marion Creations Inc., Long Island, N.Y.

Lovely Fish Toy (Item UB 161-1), Meijer Inc., Grand Rapids, Mich.

Clatterpiller Pull Toy (Model KC2320), International Playthings, Bloomfield, N.J.

Sweatshirts with LED Lights, TMR International Inc., New York.

Musical Rocking Horse (Model E4216), Enesco Imports Corp., Elk Grove Village, Ill.

Various Wooden Toys, V.B.I. Inc., San Francisco.

Ambi Jack-in-the-Ball (Model E153), Childcraft Educational Corp., Edison, N.J.

Boy's BMX Bicycle (Model 2246-T RMX-800), Roadmaster Corp., Olney, Ill.

Mini Doll with Pacifier, Westminster Export Co., Atlanta.

Little Red Wagon (Model 75), Cardinal Industries Inc., Long Island, N.Y.

Chupones Baby Pacifier, Gonzales Wholesale Imports, Houston.

Skateboards, Vanflex of California, Chatsworth, Calif.

Eight-and-a-half-inch Rag Mop Bear Boy & Girl Plush Toy Model 8300, Madison Ltd., Hackensack, N.J.

Talking Animal Book No. 56061, Chadwick Miller, Canton, Mass.

Thing-A-Ma-Jig Rattle No. 038, Xevex Corp., Braintree, Mass.

Child's Robe (Style 1868), The Company Store, LaCrosse, Wis.

Merry Go Round Rattle (61980), Artsana of America, Inc., New York.

Toy Corn Broom (Item 100), Come Play Products Co., Worcester, Mass.

Child's 100 Percent Wool Robe (Style 962), The Company Store, Minneapolis.

Omer Full Size Crib, Puck Children's Furniture, Miami.

Ten-Speed Bicycle, Benotto, Miami.

Seven-inch My Pumpkin Doll (Item 6058), S&H Wholesale Corp., East Syracuse, N.Y.

Teething Bead Necklace, Electro Plastics Inc., Port Newark, N.J.

Hardwood Toy Fire Truck (No. 5044), Marion Creations, Long Island, N.Y.

Bunny Hopper Pendant (Item EJ 14), Treasure Masters Corp., Derry, N.H.

Winnie the Pooh Crib Exerciser, Smurf Crib Exerciser, Musical Bells Crib Gym, Danara International Ltd., South Hackensack, N.J.

Big Barrel, Magic Clown, Big Bead Rattle, F.J. Strauss Co. Inc., North Bergen, N.J.

Sweat suits for Children (Style 4061), Chung Kai Industries Inc., Richmond, Calif.

Teether-Rattles (Models XG-8015 and X-4162), Amway Corp., Ada, Mich.

Six-inch Sleeping Doll, F.A.O. Schwarz, New York.

Six-inch Baby Joy Doll, McCrory Corp., York, Pa.

New Born Baby Doll, Greenman Brothers, Farmingdale, N.Y.

Footed Sleepwear, Interocean Distributors, New York.

Clothespin and Safety Pin Rattles, Pfeil and Holing Inc., Woodside, N.Y.

Outdoor Playground Equipment, Dixie Marketing Co., Hartselle, Ala.

Baby Dolls, Mini-Bebe Dolls, Karsuji Inc., Port Richey, Fla.

Children's Sleepwear, Yaohan USA Corp., Los Angeles.

Painted Wood Blocks, Worldways Production Inc., Los Angeles.

Peek-A-Puzzles, Melody Puzzles, Beginner Puzzles, Connor Toy Corp., Wausau, Wis.

Ring Rattle KO 2078, International Playthings Inc., Bloomfield, N.J.

Woodworks Lace Up Horse, Reeves International Inc., New York.

[From the Belvidere, N.J., News, Nov. 12, 1986]

FURNACE, CHIMNEY SHOULD BE CHECKED

Homeowners should have their gas heating system checked for possible carbon monoxide problems, government safety experts have warned.

According to the U.S. Consumer Product Safety Commission, consumers should arrange for a qualified heating contractor to inspect the furnace, chimney and flue pipe for problems. While chimneys are seldom checked during routine furnace servicing, CPSC said it is extremely important to have the chimney inspected for blockages, such as mortar loosening from chimney walls and birds' nests to prevent a buildup of carbon monoxide fumes in the house. Chimney sweeps are equipped to provide the service, if needed.

The government agency said people exposed to carbon monoxide fumes often show symptoms likened to "having the flu," including dizziness, fatigue, headaches, irregular breathing and nausea; cardiac patients may additionally experience angina symptoms. Exposure to continued high doses of carbon monoxide can be fatal. If flu-like symptoms persist, homeowners should consider having their heating system checked.

Apart from routine furnace inspection, CPSC said home heating systems converted from oil to gas can also pose carbon monoxide problems. After the conversion, soot on chimney walls tends to loosen and fall to the base of the flue. If enough soot falls, it could block the exhaust from the gas furnace, thereby causing a buildup of carbon monoxide fumes in the house.

CPSC said homeowners who have converted from oil to gas should have the system checked now.

[From the Hagerstown, Md., Herald Mail, Nov. 30, 1986]

COMMISSION ISSUES WARNING ON UNSAFE TOYS

WASHINGTON (UPI) — With the holiday season fast approaching, the Consumer Product Safety Commission lists 51 toys on this year's market recalled for safety reasons.

In an annual report on toy safety before the busiest buying season, commission Chairman Terrence Scanlon said that his agency and the Toy Manufacturers of America "have been actively working to see that accidents involving toys are kept to an absolute minimum" this year.

Toys were involved in more than 123,000 minor accidents and 22 deaths last year, Scanlon said at a news conference.

"If at all possible," he said, "nothing should spoil one of the real highlights of this time of year — the sight and sound of children happily playing with their new toys."

The commission, which promotes voluntary safety standards for toys, said 51 items on this year's U.S. market have been recalled, including three in the past few weeks.

Thirty-two toys were recalled by manufacturers because of small parts that can cause strangulation or choking in young children, the panel said. Others were taken off the market for a variety of reasons, including risk of fire and lead poisoning.

To avoid injuries and death, the commission urges parents to select toys that match ages and abilities of their children, to look for sturdy construction in toys, to check toys frequently to assure no damage has occurred after rough play, and to keep children from using riding toys near pools, stairs or streets.

Americans for Democratic Action, a consumer group that compiles its own list of hazardous toys, denounced the commission for putting "the whole burden" of selecting safe toys on consumers.

[From the Washington Post, Nov. 19, 1986]

CHOKING IS CALLED CHIEF TOY DANGER

By Anne Simpson, Washington Post Staff Writer

Consumer Product Safety Commission officials kicked off the agency's holiday toy safety campaign yesterday by emphasizing the danger of choking on small toy parts and displaying some of the 51 items recalled this year for dangerous defects.

One of the toys was the Romper Room Animal Train sold by Electro-Plastics Inc. of Newark. The animal-shaped train cars carry balls that come loose and could be swallowed. Neither the commission nor the manufacturer has learned of any related chokings.

Commission Chairman Terrence Scanlon also displayed a sample Voltron Lion, a metal robot that can be disassembled and rearranged to form five fierce-looking winged animals. He said that the Voltron Lion, which is made in several Far Eastern countries and sells for $60 to $90, has been very popular and may result in the largest recall in toy history. The danger comes from paint with more than twice the lead content permitted by U.S. standards.

"Nearly $7 billion worth of toys were sold in this country in the eight-week period between Halloween and Christmas" last year, Scanlon said. In the year as a whole, 123,000 toy-related accidents were reported. Most injuries were minor, but 22 children died.

The most serious threat to children comes from small parts that break off or are detachable and can be ingested or inhaled, according to Scanlon. Of the 51 toys for which the CPSC ordered recalls this year, 32 were determined dangerous because of their small parts.

[From the Associated Press, Nov. 18, 1986]

MOST
BU
TOYS
BY BARBARA SCHMITZ

WASHINGTON (AP) -- BARBARA BUSH URGED PARENTS TODAY TO PUT THEMSELVES IN THEIR CHILDREN'S PLACE WHEN SHOPPING FOR CHRISTMAS TOYS.

"TRY TO BECOME YOUR OWN SAFETY EXPERT WHEN YOU SHOP. WE NEED TO ANTICIPATE HOW YOUNGSTERS WILL USE A TOY ... WHETHER IT WILL TAKE ABUSE OR SOMEHOW COME APART," THE VICE PRESIDENT'S WIFE SAID AT THE CONSUMER PRODUCT SAFETY COMMISSION'S ANNUAL TOY SAFETY PRESS CONFERENCE.

TOY SAFETY AND REGULATIONS HAVE IMPROVED MARKEDLY IN RECENT YEARS, BUT MANY INJURIES STILL OCCUR AND THE FINAL RESPONSIBILITY FOR CHOOSING A SAFE TOY ALWAYS RESTS WITH THE PARENT, MRS. BUSH SAID.

SHE SPOKE AT AN EVENT DESIGNED TO REMIND PARENTS AND OTHER ADULTS TO KEEP SAFETY IN MIND WHEN SHOPPING FOR SEASONAL GIFTS. "THERE ARE 36 VERY SEDUCTIVE (SHOPPING) DAYS LEFT AND I WANT TO USE THEM WISELY FOR THE LITTLE ONES THAT I LOVE," SHE SAID.

UNLIKE PRIVATE GROUPS WHICH TEND TO ENDORSE OR DENOUNCE SPECIFIC TOYS, THE SAFETY COMMISSION INSTEAD OFFERS MORE GENERAL ADVICE ON WHAT TO LOOK FOR AND BUY.

MOST TOY-RELATED INJURIES IN THE PAST YEAR HAVE BEEN MINOR CUTS AND BRUISES, THE COMMISSION REPORTS, ALTHOUGH 22 FATALITIES WERE REPORTED.

THE MOST COMMON CAUSE OF DEATH WAS CHOKING ON BALLS AND MARBLES, LISTED IN FIVE CASES, AND IN FOUR INSTANCES CHILDREN WERE STRUCK BY VEHICLES WHILE THEY WERE RIDING TOYS OR TRICYCLES.

CHOOSING TOYS FOR THE PROPER AGE GROUP IS REPEATEDLY STRESSED BY THE SAFETY COMMISSION, WHICH HAS POINTED OUT THAT MANY TOYS CARRY LABELS RECOMMENDING THE AGE GROUP FOR WHICH THEY ARE INTENDED.

OFTEN PARENTS WILL BUY A TOY DESIGNED FOR AN OLDER GROUP, THINKING IT WILL HELP THEIR TOT BY CHALLENGING HIM OR HER, OR BECAUSE THEY BELIEVE THEIR OFFSPRING TO BE ADVANCED IN DEVELOPMENT.

THE COMMISSION DISCOURAGES THIS, NOTING THAT THE AGE RECOMMENDATIONS ARE INTENDED FOR SAFETY, NOT CHILD DEVELOPMENT, AND BUYING TOO ADVANCED A TOY CAN POSE A SERIOUS HAZARD.

AP-WX-11-18-86 1325EST

Mr. SCANLON. You also asked do I think that cosponsoring this with an industry group makes the arrangement too cozy. I would say not. The Commission has a history of cosponsorship of various events with both consumer groups and industry groups.

We did one last September with the Juvenile Product Manufacturers Association. We have done a conference with the swimming pool industry. I think the number of recalls of children's products in any given year will indicate to you that we do have an active enforcement program, particularly with toys. There were about 50 toys recalled in calendar year 1986.

Senator PROXMIRE. Apparently, the conference included a breakfast, with piano accompaniment, for the press. Santa and his elves also attended with Mrs. Claus. How many members of the press showed up?

Mr. SCANLON. There were 21 cameras there, including the three national networks. I don't have the number of reporters. I know the Associated Press covered it widely. All I can tell you is that the room was filled. It was the largest gathering for any press conference.

Senator PROXMIRE. Is it true Santa and his elves were agency personnel?

Mr. SCANLON. That is true; they are every year.

Senator PROXMIRE. I understand the total cost of the toy safety conference to the taxpayers was $5,200, which included $2,700 for props and decorations; $950 for five Christmas trees, and $125 for a piano player.

Do you really think that is a prudent use of public funds? Couldn't you have had a press conference and had 21 cameras or approximately 21 cameras whether you gave them the elves and Santa and so forth? Do you think they really came because they believed in Santa Claus?

Mr. SCANLON. I think one of the reasons the press came was because the conference was held at the Willard, which is across the street from the National Press Building, so it was convenient to the major media sources.

Senator PROXMIRE. How much of the $5,200 went to the Willard?

Mr. SCANLON. The room rental for the Willard was $500. For the danish and coffee served, it was just under $500. Of the figure that you are mentioning, the $5,200, Mr. Chairman, I think the correct total is about $5,400, and I think it is important to note that $3,450 of that is for reusable items that will be used in future toy press conferences.

Senator PROXMIRE. You probably could have gotten just as good attendance with the press if you would just had a little Irish coffee there. [Laughter.]

Mr. SCANLON. This was at 10 in the morning, sir.

Senator PROXMIRE. Especially at 10 in the morning. [Laughter.]

Senator Grassley?

Senator GRASSLEY. Thank you, Mr. Chairman.

Will we have two rounds of questioning? Are we limited to 5 minutes?

Senator PROXMIRE. You can question as long as you want to. You can be here until 3 o'clock in the afternoon.

Senator GRASSLEY. I won't be here that long.

MANAGEMENT

My first question would take note of the fact that in the budget request report that you gave us, that on the Commissioner's statements page signed by the Chairman and Commissioners Graham and Dawson voted against this budget on the basis of some disagreement with it. So that leads me, then, to the question that although by law we are authorized to have five commissioners, your agency is limited now to only three because of House-initiated appropriation limitations.

Recently, we have had reports over a dispute among the Commissioners as to management prerogatives of the Chairman. I would like to have each of the Commissioners speak to the point of how you feel this limitation is hurting the Commission, if you feel it is hurting it, in its discharge of its responsibilities.

Mr. SCANLON. Would you like me to start, sir?

Senator GRASSLEY. Yes.

Mr. SCANLON. Let me address the budget issue first. On August 11, 1986, I advised my two colleagues of three very minor reorganizations, staff reorganizations, that would be effective August 31. I complied with a 10-day notification rule which the Commission has had in effect since 1976.

Prior to doing that, I had obtained two legal opinions from career staff attorneys which said that making these minor changes came under my administrative prerogatives. On August 29, we advised the appropriate congressional committees of these changes.

Then, on December 11, while doing the 1987 operating plan, Commissioners Dawson and Graham attempted to reverse two of the changes that I had effected in August.

Four days later, we sent the operating plan to the Congress with a staff note saying that the Chairman objected to the reversal of these two reorganizations. Then on January 15, the 1988 budget was submitted with the reorganizations reflected in the staffing table. But because the issue was not resolved, the following day I wrote to the Assistant Attorney General, Office of Legal Counsel, asking for an advisory opinion. I have not received that opinion yet, Senator Grassley.

Senator GRASSLEY. OK.

Commissioner Dawson?

Ms. DAWSON. Yes, Senator, I would like to respond. The Chairman has given you a chronology of events from his perspective. Historically, operating plans have always included deliberations over the placement of personnel, the organization of the Commission and its functions. Back in 1984, when I first came to the Commission, this was frequently done.

In this instance, Commissioner Graham and I voted to reverse two of the reorganizations the Chairman announced last August. We left intact one of the reorganizations because we felt it did have merit.

It seems to me that when we, as a Commission, are charged with decisionmaking and policymaking responsibilities, we also have a right, even an obligation, to make sure that the management of the Commission reflects, in an appropriate manner, the policies set by the Commission. Also, the staff that produces the work which eventually comes to the Commission for decisionmaking must be responsive to the entire collegial body.

The reason Commissioner Graham and I did not sign this budget document for transmittal purposes is that it does not accurately reflect, in its allocation of staff resources, the votes that we cast in December on those two reorganizations. As to the dollar amounts, those we do support.

Senator GRASSLEY. OK. Let me further clarify, because the point is, do you feel that this issue is hurting the Commission in the discharge of its responsibilities on the question of the Chairman exercising management prerogatives that he has taken the opportunity here to so do?

Ms. DAWSON. Senator, obviously, there is a disagreement between us and the Chairman over whether or not these reorganizations were minor and purely administrative. To that extent, yes, there is a potential that it could hurt Commission operations. We have made an effort to come to some agreement internally on procedures we could implement to give the majority some input into those decisions.

We have before us now some procedures we are hoping to adopt that would, to a large extent, clear up that problem.

Senator GRASSLEY. Vice Chairman Graham?

Ms. GRAHAM. I concur with Commissioner Dawson, Senator. I would add that I do think that we need to improve the staff accountability to the Commission. The policy statement that Commissioner Dawson and I have drafted would enhance the collegial process and would provide the necessary safeguards to make sure that the Commission's policies are implemented.

Senator GRASSLEY. Back to Chairman Scanlon, then. You did give a chronology and your rationale for it, but have you seen it in any way interfering with the Commission's discharge of its responsibilities?

Mr. SCANLON. I think we are discharging our responsibilities.

Senator GRASSLEY. And you would see it enhancing those responsibilities, I assume.

Mr. SCANLON. I am sorry; I would see it what?

Senator GRASSLEY. You would see it enhancing the responsibilities; in other words, improving the opportunities to perform the responsibilities of the Commission?

Mr. SCANLON. I think the policies, if they are legal, would improve the day-to-day administration of the Commission. The problem we have had is that I have had no less than four legal renderings on three policies submitted to date, and they have been deemed illegal by our career legal staff.

That is what I am groping with today.

SINGLE ADMINISTRATOR

Senator GRASSLEY. Do Ms. Graham and Ms. Dawson have a dispute with $1 million being saved if we had one administrator as opposed to a Commission? I think Mr. Scanlon referred to a possible $1 million savings.

Ms. DAWSON. According to the GAO draft report, that is one of the benefits of having a single administrator. But one of the problems with the single administrator is that you would give up the checks and balances that exist with the collegial system. The problems we have had lately on the Commission simply point up the need to have those checks and balances.

Senator GRASSLEY. Do you accept the General Accounting Office's statement that $1 million would be saved?

Ms. DAWSON. In terms of the salaries that are paid to Commissioners and staff, that is accurate.

Senator GRASSLEY. If you wanted to comment, Ms. Graham, you can, but I think that satisfies my questioning there.

QUORUM REQUIREMENT

I want to move on to the question—I think Ms. Graham brought it up—in regard to the quorum being two. I want further clarification on what value you would see in changing the quorum requirement to two from its current three. Can you speak to the point that that needed to be done?

Ms. GRAHAM. Yes, Senator; I did. We normally have had a five-member Commission, and that was the reason why we had the three-member quorum. Now that we have three Commissioners, I believe the quorum needs to be changed to two because it would expedite our decisionmaking and policy implementation. We would be able to have more meetings more frequently.

Senator GRASSLEY. I assume, Mr. Scanlon, that you support leaving the requirement as it presently is; is that right?

Mr. SCANLON. I would, if it were reduced to two, ask that it be reduced to two with the participation of the Chairman, for obvious reasons.. [Laughter.]

CONSOLIDATION

Senator GRASSLEY. On the $300,000 saved for the move to the new location in Bethesda, is that move completed?

Mr. SCANLON. The move is complete, Senator Grassley. It was completed just prior to Christmas, 1986.

Senator GRASSLEY. Then we are certain of that saving as a result of the move?

Mr. SCANLON. Oh, that is definite. In fact, Congress budgeted $0.5 million for the move, and I think total expenditures to date are less than $30,000.

Senator GRASSLEY. Why are rent costs increasing for fiscal year 1988 when the Logan Building costs are being eliminated?

Mr. MURR. Senator, the increase reflects GSA changes in our standard level users charge for those buildings we occupy. There are increases in the square footage rental for those buildings for fiscal year 1988. It is not additional space and the rent increase does reflect the absence of the Logan Building. The rents for our other locations simply went up.

Senator GRASSLEY. I just got a note here from your staff saying my 10 minutes are up.

Senator PROXMIRE. Do you want to go ahead?

VOLUNTARY STANDARDS

Senator GRASSLEY. Commissioner Dawson made a statement which highlights the agency's efforts on voluntary standards. You were indicating, I believe, in that statement, concern over the level of the Commission's involvement in this area. Is there an issue within the Commission as to the level of the Commission's participation in crafting voluntary standards?

Ms. DAWSON. Are you addressing that to me?

Senator GRASSLEY. I really want both comments, from the Chairman as well as you.

Mr. SCANLON. I am not aware of any, Senator Grassley. I think we are all pretty much in agreement with the 1981 Amendments to the Consumer Product Safety Act, which highlighted voluntary standards.

Ms. DAWSON. Senator, in some of our budget and operating plan discussions, I have raised concerns about too ambitious a program that could get staff involved in every voluntary standard. Many voluntary standards done by industry include a lot of other considerations besides safety. Our major goal, of course, is simply to try to get the best safety for the consumer.

Since 1981, we have had to defer to voluntary standards if they are adequate. We should give more thought to the relative hazards involved in those standards before we involve ourselves in their creation. We have two levels of involvement in volutary standards creation at the Commission: participation and monitoring levels.

We monitor quite a few standards, and those entail, perhaps, having a staff person keep in touch with the standard-setting organization.

Our participation level often involves large amounts of staff time and Commission resources as we did in, for example, chain saws that was a very good example of the benefits of participation. I am simply suggesting we need to examine more carefully the objectives of each one of those voluntary standards before we commit ourselves to such large resources.

Senator GRASSLEY. I think maybe from your standpoint, Mr. Scanlon, I ought to have a statement from you. Even though there is no disagreement within the Commission over voluntary standards, there is some, evidently, disagreement on quantity and quality, presuming more quantity may be less quality, and that sort of an issue.

Do you see it the same way?

Mr. SCANLON. I am a proponent of the whole voluntary standards process, and I like our staff to participate to the maximum.

In 1986, we were involved in either participating or monitoring 55 different efforts. We are estimating for 1987 36 such efforts. I think that will be adequate, particularly with a somewhat reduced budget and the fact that we are focusing a lot of attention on the all-terrain vehicle issue.

JOINT CPSC/INDUSTRY EFFORTS

Senator GRASSLEY. I want to ask some questions along the line of the very last issue that the Chairman brought up, and that is in regard to this relationship with the industry. I would direct these to you, Chairman Scanlon.

As you said, at least $5,000, or maybe $5,400, was spent to alert millions of Americans on how to buy safe toys. A very general question, but I think an important one, so we know where you are coming from, whether or not you see this as an exorbitant amount of money to be spent in an effort like that.

Mr. SCANLON. I do not, Senator Grassley. I think, for the $5,400 expenditure the Commission obligated for this effort, the amount of publicity was very significant.

There would be no way that we could get the safety message out, along with the listing of recalls of toys in the previous calendar year, for that low an expenditure.

I might add that the Toy Manufacturers of America also spent $5,600 of their money. So our monies were matched.

Senator GRASSLEY. Are you doing other joint industry efforts which would alert consumers to dangers, safety concerns, et cetera?

Mr. SCANLON. We are, and we have done so in the past.

Senator GRASSLEY. I would like to ask you whether or not you can verify—well, I don't think it is a question of verification, but I think to just discuss with me, for instance, the agency has also provided, has it not, $10,000 to the Consumer Federation of America to help alert consumers to recalls?

Mr. SCANLON. That is correct. Last fiscal year—I am sorry, it was 1985—we provided just under $10,000 to the CFA to publicize our recalls.

Senator GRASSLEY. I would suggest, and maybe I shouldn't direct this just to you but maybe also give the other Commissioners an opportunity to respond, too, to some explanation, if there is any, between what difference there would be between giving $10,000 to the Consumer Federation of America or a joint effort with the industry to alert people to dangers from products?

Mr. SCANLON. I think both expenditures are good ones, as long as a safety message is being imparted.

Senator GRASSLEY. Would the other two Commissioners agree or disagree with the Chairman on that statement that he just made?

Ms. DAWSON. I would have to qualify that.

Senator GRASSLEY. You can qualify it.

Ms. DAWSON. All right. I personally felt that the funds expended on the toy safety conference were excessive. Of course I support getting the safety message across. I believe, however, there are other ways that we could have done it a lot more cheaply.

I don't necessarily disagree with the concept of working cooperatively with either industry or consumer groups in joint efforts to get safety information to the consumer. I do think that ground rules need to be established, however, to make sure that everyone understands that even though we cooperate on these kinds of activities, we remain a regulatory body and we do have enforcement authority over these industries.

Senator GRASSLEY. For clarification, would you apply what you just said, then, equally to the Consumer Federation of America as well as the Toy Manufacturers Association?

Ms. DAWSON. Senator Grassley, I don't believe that the grant to the Consumer Federation of America came up for Commission consideration. It would be a little hard for me to comment on it at this point.

Senator GRASSLEY. In other words, it was granted at the staff level, right?

Ms. DAWSON. I assume so.

Senator GRASSLEY. But still, as a manager of the entire agency, how do you see the expenditure of money by the agency, whether it is done at the staff level or whether it is done at the Commission level, to involve a legitimate consumer group on the one hand expending taxpayers' money as opposed to the joint effort of the Consumer Product Safety Commission and the toy manufacturers on the other hand?

In other words, seeing it in that light, my question to you is, then, that are those, for clarification, those statements that you made previously, would they apply equally to both?

Ms. DAWSON. It would be something the Commission would want to consider, and it would want to know what the ground rules were for either kind of activity.

We have cooperated in the past with such groups, in projects that I can't be specific about at this point but in which I have concurred.

Senator GRASSLEY. Vice Chairman Graham, do you have anything to say?

Ms. GRAHAM. Senator, I, too, opposed the format of the news conference. I think having entertainment is unnecessary in order to obtain our media goals. I also objected to cosponsoring an event with the industry which the Commission regulates.

For those reasons, I did not attend the conference.

Senator GRASSLEY. Mr. Chairman, I just got a note from your staff, my second 10 minutes are up. I think I would need about 7 more minutes.

Senator PROXMIRE. Let me go ahead, and then I will go back to you.

COSTS FOR TOY SAFETY CONFERENCE

Commissioner Scanlon, is it true that the General Counsel's Office ruled beforehand that the $5,400 expenditure for the toy safety news conference on the part of the Commission would be improper and illegal and yet those costs were covered anyway?

Mr. SCANLON. I was advised last month, in January, that the $500 expenditure for the danish and coffee was illegal. We have spoken to that staff member who had obligated the monies, and yes, she had been advised by an attorney in September of this year that such expenditures were not allowable.

I have used my entire $500 representational money afforded the Chairman to cover those expenses.

Commissioner Graham and her staff have done extensive work in reviewing the costs of this activity, and she is much more knowledgeable than I am about all of it. She may want to add comments or correct me if I am incorrect.

Senator PROXMIRE. Commissioner Graham?

Ms. GRAHAM. As far as I understand, that is true, Senator, what the Chairman just said. I don't have the numbers in my head. The Chairman asked me early on to coordinate the press conference. I made recommendations to him, and most of those were not accepted.

I got out of the process when I decided that it was inappropriate for me to attend the press conference.

ALL-TERRAIN VEHICLES

Senator PROXMIRE. I understand the Commission has reached a decision regarding the investigation of all-terrain vehicles, the so-called ATV's. Those vehicles, as you know, have become very popular in recent years and have been responsible for 230,000 injuries and 559 deaths since 1980. One-fifth of the fatalities involves fatalities for children age 12 or younger.

I am advised by my staff that the disclosure of the Commission's decision is certainly restricted and should not be discussed in any detail here today; is that correct?

Mr. SCANLON. Partially correct, Senator. We had two sessions, one was a closed enforcement session, and I am not at liberty to discuss what happened at that session.

Senator PROXMIRE. When will you be in a position to discuss the Commission's decision?

Mr. SCANLON. When the Justice Department advises us that we can.

What I can discuss with you is the activity relating to child-size ATV's. As part of the public session held on December 18, the Commission, by a 2-1 vote, did adopt a whole program addressing safety issues on ATV's. Part of that was a letter to the manufacturers that manufacture the 50 and 60 c.c. size ATV's, which are designed for younger children.

We asked that the manufacturers cease marketing these voluntarily. We asked that they respond to the Commission by April 1.

Senator PROXMIRE. The New York Times and Journal of Commerce carried stories last month on the agency's all-terrain vehicle plan of action. Do you have any idea how some of this information reached the press?

Mr. SCANLON. I do not.

Senator PROXMIRE. Did you investigate that leak?

Mr. SCANLON. I did. I am not sure about this, particularly. The information on the enforcement activity appeared in the Product Safety Letter about 5 to 6 weeks after the December vote. I should say part of the activity that took place in that closed meeting was revealed in the Product Safety Letter, which is a weekly trade publication which tracks the daily activities of the Commission.

When I was advised of this, not only did I contact my colleagues, advised them that part of the information was out; I did call the Department of Justice and spoke to the Assistant Attorney General assigned to this case and told him that part of the information was released.

I also spoke to our Executive Director and told him of an added need for increased security of enforcement activities at the Commission. A memo went out to all staff advising them of the seriousness of keeping all enforcement activities confidential.

Senator PROXMIRE. Thank you very much.

Senator Grassley has asked to ask another question. He has to leave at 11:05, so I will yield to Senator Grassley.

STATE GRANTS

Senator GRASSLEY. Yes; and this will be a little bit of a different issue. We have, over the past few years, given some grants to states to help with consumer protection. In my state, the attorney general has administered some of this money, and by the way, let me say he was a Democrat attorney general, not a Republican, but he does a good job, and I think you would find your money well spent by his agency.

Anyway, it is my understanding now that those state grants are eliminated. For my part, I have great faith in local and state governments administering a lot of these programs even better than we can from the Federal government.

Has that happened, that those grants have been eliminated? If that is true, can you explain to me why you took that action?

Mr. SCANLON. I agree with you, Senator. I think the state grants are probably the most effective expenditure of funds in the Commission today. The amount expended last year was $250,000.

The amount requested for fiscal year 1988 is $145,000. I personally did not vote for that reduction. I would have kept it at least at $250,000.

Senator GRASSLEY. Then could I ask the Commissioners not only to maybe explain why they thought that it should be reduced, but also, is there any chance that we could get a reconsideration of the Commission? In other words, I guess I would personally ask for a reconsideration on the part of the Commission to the restoring of that money, because I think it is very well spent, at least in my state.

Ms. DAWSON. Senator, I will comment on that. I have always been a supporter of those state and local grants. Right now, the Commission has pending an evaluation of those grants. I supported the $250,000 level that is being expended this fiscal year, and I would like to see a good accounting of what we are getting for that amount of money.

We were faced with some need to cut back all across the board in our programs, and when you are faced with pressing needs in other hazards projects, you have to make a decision where to make those cuts.

We do have an opportunity, of course, once the budget is adopted, to go back and review it when operating plan time comes. Of course, if we find that we have funds, we can always then look again at those state grants and see what would be the most beneficial to fund.

Senator GRASSLEY. If you don't mind, I would appreciate it if you would reconsider.

If not, Mr. Chairman, I would appreciate at your level if you would consider looking at favorable restoration of that amount of money for state grants.

Senator PROXMIRE. I would be delighted to do that. Thank you very much for a very good suggestion.

Senator GRASSLEY. Thank you.

RIDING MOWERS

Senator PROXMIRE. Mr. Scanlon, in your discussion of the riding mower project that is set forth in your justifications, you point out that the Commission proposed a comprehensive standard for all power lawn mowers including walk-behind mowers and riding mowers back in May 1977.

You have since issued separately a mandatory final standard for walk behind power motors effective June 30, 1982. Why did you decide to abandon the mandatory standard approach to the riding mower problem?

Mr. SCANLON. Because we think we can get the safety that we desire through the voluntary standard process.

Senator PROXMIRE. When will you complete your current riding mower initiative? Can you give us a general idea now and provide a detailed time table for the record?

Mr. SCANLON. Probably in 1989.

Senator PROXMIRE. Do you have a general idea of when, in the middle of the year?

Mr. SCANLON. Mid-year.

Senator PROXMIRE. OK. In your justification, you indicate that riding mowers and garden tractors are causing 100 deaths and 20,300 hospital emergency room treated injuries, yet you are confining your activities to riding mowers. Can you tell us now, or for the record, how many of those injuries and deaths are attributable to garden tractors?

Mr. SCANLON. Garden tractors as opposed to what, Senator?

Senator PROXMIRE. Riding mowers.

Mr. SCANLON. I think the figures for garden tractors are included with those for riding mowers, but industrial motors are excluded.

Senator PROXMIRE. I want a breakdown indicating how many fatalities and injuries are attributable to garden tractors and how many are attributable to riding mowers.

Mr. SCANLON. I will have to provide that for the record.

[The information follows:]

RIDING MOWER INFORMATION

The Commission's priority project on riding mowers encompasses a variety of ride-on vehicles used for grass-cutting purposes. This includes vehicles called riding mowers, lawn tractors, and garden tractors. The project does not include commercial grass-cutting equipment or farm-use equipment.

The industry uses terms like "riding mower, lawn tractor, and garden tractor" depending on the intended uses of the equipment and the type of attachments that can be used with the equipment. When collecting actual injury data, it is very difficult to identify and properly place the vehicles in these categories. Product classification is subject to the interpretation of both the victim or others reporting the accident details and those responsible for collecting and coding the information.

Data analylsis will distinguish between consumer and nonconsumer use, and identify, classify, and quantify hazard patterns. To the extent the data allows, vehicles will also be classified by style and configuration.

Currently, the Commission estimates there are 100 fatalities and 50,000 medically attended injuries associated with ride-on grass-cutting equipment each year. The major hazards associated with this product category are blade contact and stability. Working cooperatively with industry, our goal is to reduce serious and life-threatening injuries by developing improved safety standards for consumer ride-on mowers.

Senator PROXMIRE. Can you tell us why you aren't working on the garden tractor problem? Do you have reason to feel that that is less significant?

Mr. SCANLON. We are, Senator, and I believe that is part of the overall program. What it excludes are the industrial mowers, which we would not have jurisdiction.

Senator PROXMIRE. So the riding mower standard includes garden tractors?

Mr. SCANLON. That is my understanding.

INFORMATION AND EDUCATION RESOURCES

Senator PROXMIRE. You are requesting $374,000 for next year's clearinghouse activities. That represents a very modest increase over your current budget, yet your backlog of data requests will grow from 167 in 1987 to 367 in 1988; it will more than double.

The Freedom of Information Act backlog also shows a projected increase from 1,700 in 1987 to 2,700 in 1988, an increase of 1,000. What steps do you intend to take to deal with these backlogs?

Mr. SCANLON. We are asking for more money in this 1988 budget request. I might point out, too, the——

Senator PROXMIRE. The backlogs continued to grow.

Mr. SCANLON. Well, the problem is that we have not had enough resources in this information and education activity.

The Hotline, the FOIA, the Clearinghouse, and the response to consumer requests come under the aegis of this I&E activity.

Let me just give you a couple of figures, Senator, to show you the amount of work. On our Hotline, we have between 1,000 and 1,500 calls per week. On FOIA requests, we have today between 1,000 and 1,500 requests per week.

At the Clearinghouse, we have between 1,000 and 1,200 requests per week. These continue to grow, so that 80 percent of the requested amount of monies are for reactive efforts. It is for this increasing workload.

Senator PROXMIRE. But you are not going to be processing any more requests. The justifications dated January 1987, on page 52 says:

Backlog, start of year, 1,286; 1,700 in 1987; 2,800 in 1988. Requests received, 8,000 in 1986; 7,500 in 1987; 8,000 in 1988. Requests processed, 6,500 each year.

So your backlog is going to continue to grow.

Mr. MURR. We have been trying to do several things to address the backlog. One, in this fiscal year, 1987, we have used some temporary personnel to try to get the backlog down.

In addition, we added resources for 1988, and it is a topic, I think as is pointed out in this budget, where we hope to do a more complete study as to how we could do things more efficiently, cut out some steps, whatever, to cut down the time required to process these requests.

HOTLINE RESOURCES

Senator PROXMIRE. You are requesting $2,137,000 for public information services, an increase of almost 30 percent over your current budget. However, the workload table on page 52 of your justification shows very little workload growth. Other than a projected increase of about 7 percent in your hotline calls and 14 percent in complaints received, your workload seems to stay pretty constant.

If that is the case, why do you need such a substantial increase?

Mr. SCANLON. We are requesting an increase of two FTE's to handle that increased workload on the Hotline.

Mr. MURR. If I may, I think if you will look at the top of page 52 on the resources chart, you will see that our actual expenditure for 1986 was 31 FTE's. When we saw that, although we haven't changed our estimate for 1987 yet, we upped our 1988 total to reflect the reality of the level that we used in 1986.

Senator PROXMIRE. So your 1987 estimate is wrong?

Mr. MURR. Well, it is probably going to come out a bit higher. We will have to see how it is going through the year. This 1987 estimate was in our initial budget before we knew that 1986 was running higher. We will keep an eye on it, though, and if it does run as 1986 did, certainly, we will let you know that.

Senator PROXMIRE. Incidentally, can you tell us why you projected an increase of only 7 percent in Hotline calls and an increase of only 14 percent in complaints coming in on the Hotline?

Mr. MURR. No. I think both, again, are based on the latest levels that we have been experiencing and how we expect them to go from here out. The distribution in those calls between complaints and requests for information is just based on what the current ratio for those two are.

Senator PROXMIRE. Thank you very, very much. We appreciate your testimony. It has been very helpful.

Mr. SCANLON. Thank you, Senator.

SUBMITTED QUESTIONS

Senator PROXMIRE. We have additional questions for the record.

We want to thank you, Chairman Scanlon and Commissioners for your testimony.

Mr. SCANLON. Thank you very much.

[The following questions were not asked at the hearing but were submitted to the Commission for response for the record:]

Questions Submitted by Senator Proxmire

REFUSE BINS

Question: Your justification points out that a significant number of refuse bins currently in the marketplace do not comply with the ban on unstable bins with resultant deaths and injuries to consumers, primarily children. What percentage of refuse bins presently in use fail to meet the standard?

Answer: When the ban on unstable refuse bins was established in 1977, there were an estimated 638,000 to 716,000 refuse bins in the marketplace which were subject to the ban. An estimated 359,000 to 371,000 of these bins were potentially unstable. Moreover, there were 12 known major manufacturers and approximately 190 small fabricators producing approximately 100,000 refuse bins each year.

No current estimates are available for the total number of bins currently in use. However, the figures available from the FY 1986 Refuse Bins Program provide some insight into the extent of the problem which remains. During FY 1986, there were 59 inspections of refuse bin haulers and 45 samples collected. Eleven cases were opened under the program which involved recall or retrofit programs. Ten of these cases were settled or are in the process of being settled through voluntary compliance agreements and one case resulted in a civil penalty. This represents a violation rate of 18.6 percent of firms inspected during 1986.

Question: Do you have a comprehensive game plan for dealing with the refuse bin problem? For example, are you working toward any compliance targets?

Answer: The overall objective of the staff's enforcement efforts on refuse bins is: (1) to identify all manufacturers of newly constructed refuse bins and to inspect them to insure that bins which currently are being manufactured comply with the ban; (2) to identify firms which fabricate refuse bins from components of existing bins and insure that such firms are also complying with the ban through inspections, information and education efforts, and limited enforcement actions, and (3) to continue to police the marketplace for haulers who are not complying with the ban and obtain compliance through voluntary retrofitting programs, education, and selective enforcement actions. Part 1 of this plan has been initiated under the FY 1987 field program which assigns a limited number of inspections of refuse bin manufacturers. As in 1987, State and local contract funds will be used in those regional areas where significant enforcement activities are necessary to carry out the planned program.

VOLUNTARY STANDARDS CONFORMANCE

Question: You are proposing a reduction of your voluntary standards conformance budget from $217,000 and four positions in 1987 to $45,000 and one position in 1988. Your justification indicates that the program provides support for monitoring conformance with specific voluntary standards. Why have you decided that voluntary

standard conformance monitoring should be almost eliminated in 1988?

Answer: The Commission considers the development of voluntary standards and monitoring of their implementation one of the Agency's most important ongoing activities. Moreover, last year, the Commission approved a new policy which requires that a monitoring plan be developed whenever CPSC participates in the development of, or has a substantial interest in, a voluntary standard, such as when rulemaking is deferred in favor of a voluntary effort. The budget request identifies only those monitoring efforts which are performed on a large enough scale to require the expenditure of considerable Commission resources, particularly regional office staff time. In 1987 and 1988, each identified project involves nearly a full staff year of effort. In 1988, voluntary standards will be monitored with involvement by staff who are primarily assigned to project management or technical work in the hazard areas. This will involve the expenditure of fewer resources because project staff will gather information on industry conformance through means other than on-site inspections at points of manufacture or sale that are solely intended for this purpose. For example, staff can gather information through general market studies; reviewing trade complaints (i.e., where manufacturers or distributors report to CPSC about hazards posed by their competitors); information gathered in association with regulatory, including Section 15, investigations; surveillance of products displayed at trade shows; and information received from third party certifying groups, as well as information supplied voluntarily by industry groups for staff evaluation.

In 1988 we expect that conformance monitoring will be conducted on nine standards in addition to the one specifically identified in the budget. These projects are not specifically reflected in the Voluntary Standards Conformance subactivity. The reduction in resources does not represent a significant deemphasis when all conformance monitoring efforts are considered. In the future, the justification document will be expanded to clarify this aspect of the program.

ADVICE/CONTINGENCIES

Question: You plan to spend $472,000 on your advice/contingencies program in 1988. Staffing for the program was cut from 12 to 10 this year and you plan a further cut to 9 positions in 1988. However, you point out in your justification that it is more cost-effective to provide advice and guidance to industry prior to the introduction of a product than to correct problems after they occur. If this is the case, why are you reducing your activities in this area?

Answer: The advice/contingencies program is composed of two separate projects, General Ongoing Compliance and Advice/Guidance. General Ongoing Compliance provides resources for unforeseen situations and to correct any serious hazard in the regulated product area not covered by other specific compliance projects. Examples include activities in the area of refrigerator safety, cellulose insulation and architectural glazing. It is important to have a small pool of resources which may be used to address unanticipated

emergencies and not adversely impact the other planned Compliance program enforcement projects. However, based on actual experience, we believe fewer resources can be set aside for contingencies without jeopardizing our ability to address future problems.

The second project contained in the program, Advice/Guidance, represents resources in the regional offices for responding to actual inquiries on labeling, regulation requirements, and other inquiries from manufacturers and importers. Since this is a cost-effective activity, no changes in this project are proposed over the three-year period.

HOTLINE

Question: You plan to provide increased funding for your Hotline in FY 1988. What are you spending on the Hotline currently and how much do you plan to spend next year?

Answer: The 1987 operating plan provides 3.5 FTEs and $392,000 and the 1988 budget request includes 5.3 FTEs and $585,000 for the Hotline.

Question: What efforts do you routinely make to keep the public informed of the availability and purpose of the Hotline?

Answer: CPSC has encouraged consumers to call the Hotline in a number of ways in the past several years:

- Magazines have listed the Hotline number and encouraged consumers to call about potentially hazardous products.
- CPSC News Peleases urge consumers to call for more information about recalled products.
- A "Hotline Brochure" is distributed to consumers encouraging them to report injuries and potentially hazardous products to the Hotline.
- In 1987, a radio public service announcement will be developed urging consumers to call the Hotline to report potentially hazardous products.

Question: Why do you believe the use of the Hotline will grow from 70,000 calls in 1987 to 75,000 calls in 1988?

Answer: Recently a survey was conducted to count the number of "busy signals" received and the length of "waiting time" for those calls answered by our answering machine. The data from this survey showed that many more callers were trying to reach the Hotline than our staff could answer. Therefore, we proposed that an automated, taped-message answering machine be installed to handle several types of calls, and that additional staff be hired to handle complex inquiries and to take consumer complaints about hazardous products. With the addition of the answering machine and personnel we believe more calls will be answered.

Question: Can you give us a rough idea of how Hotline use has

varied over the past five years? Has there been a steady increase?

Answer: There was a decline in the number of operators assigned to the Hotline following the 1981 reduction-in-force and thus the number of calls answered also declined. A planning issue paper developed last year to examine this issue suggested the 1988 increase in response to this situation. Other than the number of calls, a further consideration is the complexity of the questions asked by consumers. For example, in 1987 the number of calls answered is approximately the same as 1986 but the length of calls has increased due to more complex answers required for items such as a recent, major crib recall. Some of these cribs with the same model number may or may not be defective, and, therefore, more detailed information has to be given to the consumer.

RETIREMENT COSTS

Question: You project the expenditure of $496,000 in 1987 and $1,386,000 in 1988 for additional Federal employee retirement costs. These estimates are based on government-wide assumptions regarding numbers of employees participating in the new retirement program and anticipated contribution amounts. However, I would imagine that the pattern of participation in the new system would vary widely from agency to agency based on average years of service and so forth.

Can you tell us if your internal estimates of the costs of the new retirement system agree with the estimates OMB reached on the basis of a government-wide analysis?

Answer: At this time there are very little internal data available to project future FERS costs. The thrift savings plan contributions will not start until the first pay period in April and employees who choose to switch to FERS cannot do so until July. The only actual data we have are those on the number of post-1983 hires, which represent approximately 5 percent of the CPSC workforce compared to OMB's assumption of 12 percent. Since costs of post-1983 hires in general constitute only a small portion of CPSC's projected FERS expenditures, and since the employees representing the 7 percent difference between these figures are still eligible to switch to FERS, any internal projection we could make at this time would be very similar to OMB's figure.

RENT COSTS

Question: You are projecting an increase in rental costs of $318,000 although you will not be renting additional space. This is an increase of about 16 percent. Why are your rental costs going up this sharply at a time when there seems to be a substantial amount of unoccupied space in the Metropolitan Washington Area?

Answer: Although we are not renting any additional space, GSA estimates show significant increases in rates, as reflected in the 1988 estimate. The rent is for space not only in the Commission's Bethesda offices, but also for space in the five regional offices and many resident posts throughout the country. Once GSA projects a billing rate such as this, they charge the Commission the same rate as projected despite any subsequent rent increases or

decreases. It should be pointed out that a downward adjustment was made in some Washington-area building rental rates in 1987 based upon GSA's renegotiation of space rates.

STAFFING

Question: Your request reflects a net reduction of 8 full time equivalent positions -- from 527 to 519 -- and there are deeper cuts in some programs. In fact, your justification indicates that 14 positions will be taken from your hazard programs. Will you be able to achieve these reductions through attrition?

Answer: The Commission has already achieved most of this FTE reduction through staff attrition, principally by hiring restrictions imposed in 1986 to meet the Gramm-Rudman-Hollings sequestration target. Current staffing levels are very close to the 519 figure in total, although the distribution among the programs and subactivities deviates from the proposed plan and will be adjusted by selected hiring and further attrition throughout FY 1987.

HAZARD PROGRAM REDUCTION

Question: There seems to be a continuing drop in your hazard program staffing levels. In FY 1986 hazard program staffing totalled 188, your 1987 estimate is 174, and you are proposing 160 slots next year. How do you account for such a sharp cut in an area that is essential to the Agency's mission?

Answer: The Hazard Identification and Analysis program, representing the Commission's data gathering, analysis, and review function, is not proposed for significant change over the three-year period. While the percentage of staff allocated to the Hazard Assessment and Reduction program in 1988 is not significantly different from the 1980 distribution, as shown on page 11 of the budget justification, it is proposed to be reduced from 127 FTEs in 1986 to 102 FTEs in 1988, a drop of 19.6 percent. Four interrelated considerations are involved:

- o Cigarette Safety and Indoor Air Quality (IAQ)

  Congress added $1.3 million to the CPSC budget for Cigarette Safety and IAQ activities in 1986 and $1.1 million in 1987. In 1988, $70,000 is budgeted for IAQ and no funds are included for the Cigarette Safety study as it will be concluded in FY 1987. A large part of the staffing reduction seen over the period, and particularly between 1987 and 1988, is due to reduced funding for these two projects.

- o All-Terrain Vehicle (ATV) Work

  Staff resources dedicated to ATV studies will also decline significantly over the period, since most major components of the hazard analysis were completed in 1986. The 21.2 FTEs utilized for ATV hazard work in 1986 represented a very large commitment of Commission resources; only 8.8 FTEs are projected for 1987 and 9.3 in 1988.

- Reduction in Total Commission Staff

  As staffing resources become available over the three year period from the completion of individual projects, such as the three described above, they have been used to help meet the Commission's lower FTE targets as reflected in the request. The 1986 appropriation included 568 FTEs, of which 542 were actually used due to Gramm-Rudman-Hollings reductions; through 1988 there is an 8.6 percent reduction in authorized staff strength.

- Discretionary Nature of Program

  Individual hazard projects which comprise the Hazard Assessment and Reduction program generally terminate after one to several years of support, having culminated in the development of a standard or the completion of work for other reasons. This turnover makes the program reasonably discretionary in that projects which drop out after a given year need not be replaced with other projects requiring the same total resource utilization in the following year. At the same time, it is reasonably easy to restore hazard project work in subsequent fiscal years should resource levels permit. Much of the work in other Commission programs is by contrast ongoing in nature, such as the data collection network, Section 15 compliance work, the printing information Hotline, and administrative support functions. While some cuts have been made in non-hazard projects, no significant reductions have been made in order to avoid immediate, irreparable disruptions.

ELECTRICAL/MECHANICAL/CHILDREN'S PROGRAM

Question: The largest reduction occurs under the Electrical/Mechanical/Children activity which will have suffered a 28 percent drop since 1986, if Congress approves your request. Tell us what's included in this activity and why the staffing level is going down so sharply?

Answer: The 10-16 individual projects conducted within this subactivity each year vary in the amount of staff and contract dollars necessary for successful completion. In 1988, these projects include Cords and Plugs, Outlets, Electric Fans, Electrical Voluntary Standards, Chain Saws, ATVs, Riding Mowers, Bicycles, Playground Equipment, and Children's Voluntary Standards. As described in the previous answer, resources dedicated to All-Terrain Vehicle (ATV) studies declined by 12 FTEs over the period, constituting most of the 14 FTE reductions.

AGENCY MANAGEMENT STAFF

Question: You're requesting an increase of two under Agency Management -- bringing the total to 130. Why can't you get along with existing staff next year?

Answer: The increase in Agency Management represents a slight adjustment to reflect current on-board staffing levels. As shown on page 11 of the justification document, the percentage of Agency Management resources is consistent with historical patterns, and we feel it is appropriate to the size of the Agency. On an absolute basis and as a percentage of total Agency staffing, Agency Management exclusive of the Commissioners and Staff subactivity will be considerably lower than our actual 1986 usage.

PUBLIC INFORMATION SERVICES

Question: You're also requesting more staffing under your Consumer Information function. The Public Information Services activity would be restored to its FY 1986 staffing level of 31 - 6 more than you currently have on board. How would your operations be affected if we didn't give you these 6 additional staff?

Answer: The Public Information Services activities are needed simply to respond to public demand for information. The proposal to increase them is based on a planning issue paper which indicated that the Commission could do much to improve its capacity to respond to the many calls, complaints and inquiries we receive from concerned consumers. The increase in staff is primarily for the Hotline and correspondence response activities, and it has been redirected from other Consumer Information activities rather than added to the total Commission staffing level. If additional staff were not provided to the Hotline, callers would have to wait longer on "hold" until a CPSC staff member could actually answer their call. This means fewer calls would be answered and fewer consumer product complaints would be taken. If extra staff was not provided for correspondence response, information to consumers and industry would take longer to answer and in some cases might not be as thorough or timely a response as the Commission would like.

RESIDENTIAL POOLS

Question: On page 3 of your justification you indicate that your study of child drownings in residential pools may lead you to encourage the adoption of safety requirements in building codes. Is the National Institute of Building Sciences involved in your study in any way?

Answer: No. We have, however, been working with the National Conference of States on Building Codes and Standards (NCSBCS) which coordinates activities relating to building codes and shares information with delegates in each State. In fact, a representative of NCSBCS is currently the Chairman of the Technical Subcommittee of the National Swimming Pool Safety Committee which is reviewing the building codes for the types of barrier requirements that exists for residential swimming pools. In addition, we have initiated contact with the Council of American Building Officials, which is the coordinating body for the three model building code organizations in the United States, to share information on this project.

Although the Commission is working with the National Institute of Building Sciences (NIBS) in other areas (i.e., fire toxicity,

indoor air quality), the building code organizations mentioned appear to be the most appropriate groups with which to work. The Commission will, however, inform NIBS of our activities on child drownings in residential swimming pools.

WATER HEATERS

Question: One of your recent priority projects was water heaters. You indicate in your justification that you have worked with water heater manufacturers to incorporate "flame roll-out" protection on water heaters. What is "flame roll-out"?

Answer: Flame roll-out is the occurrence of flames issuing out of the combustion chamber through the air openings in the bottom sides of the water heater. Flame roll-out occurs because of a lack of combustion air which can be due to poor draft or blockage of the flueway. The safety device that will be added to water heaters to reduce the likelihood of a fire will detect the presence of heat outside the combustion chamber and shut off the gas flow.

Question: What percentage of the water heaters currently being sold have "flame roll-out"?

Answer: Currently, there are no water heaters that are equipped with the safety device. The industry has agreed to revise the existing voluntary standard to require them, but is currently waiting on a suitable test method for evaluating them before proceeding. The Commission is currently performing a laboratory evaluation of a proposed test method to be incorporated into the standard. It is estimated that the voluntary standard for gas water heaters will require these devices in late 1988 or early 1989.

Questions Submitted by Senator Garn

COMMISSION SIZE

Although authorized by law for five Commissioners, your Agency has been limited to only three because of a House initiated appropriation limitation. Recently we have had reports over a dispute among the three Commissioners as to "management perogatives" of the Chairman.

Question 1: Do you feel that this limitation is hurting the Commission in the discharge of its responsibilities? (Also of other Commissioners?)

Question 2: While GAO is evaluating this issue and the wisdom of restructuring the agency to be headed by a single administrator, will a decision either to expand the size of the Commission to its authorized five -- or for a single agency head have a budgetary impact?

Question 3: Should Congress leave the current situation of three Commissioners intact, what value do you see in changing the quorum requirement to two -- from its current three?

Chairman Scanlon-

Answer 1: As the personal statement I submitted for the record indicates, the Commission has, in my view, been effectively discharging its responsibilities in recent months, even though there have only been three Commissioners since last August. However, it is my feeling that the Commission could be even more effective if the Commission were to be headed by a single administrator. Such a structure would result in quicker decision-making, more efficient management, improved accountability and less confusion for those who have to deal with the Commission. Also, a single agency head, as opposed to a five-member Commission, would save either the CPSC or the taxpayers approximately $1 million per year, a significant sum considering the fact that the Commission's total budget for a year is less than $35 million. But, if the decision is to retain the collegial body, I would prefer a return to the five-member Commission envisioned by Congress when it created the Consumer Product Safety Commission.

Answer 2: Using, as a basis, the current three-member Commission, in either case, the impact on the Commission's budget would be $500,000. Increasing the Commission from three to five-members would add approximately $500,000 to payroll costs ($250,000 for each Commissioner and his/her staff), while shifting to a single administrator would cut the CPSC's payroll by roughly the same amount, assuming an assistant administrator's position was not created. If such a position was created, the cost savings of switching to a single agency head would be somewhat less than $250,000.

Answer 3: As I mentioned during the hearing, I favor restructuring the Commission so that it would be headed by a single administrator. But, if one assumes the Commission stays its current size, I would prefer that the quorum requirement remain three. After all, if the rationale for a collegial body is to accommodate diversity of opinion, then it stands to reason that the ability of a Commissioner or Commissioners to present divergent points of view should not be compromised to the extent that they can be ignored or summarily over-ridden by as few as two Commissioners.

However, if the Committee becomes convinced that the quorum for the CPSC should be reduced to two, I would recommend that it also be required that one of the two necessary to constitute a quorum be the Chairman.

Vice Chairman Graham-

Answer 1: The limitation of three Commissioners is only a problem insofar as two members do not constitute a quorum under existing law. Therefore, absence of the third member can effectively preclude the Commission from undertaking its responsibilities and conducting its business.

Answer 2: The FY 88 budget request includes sufficient resources to support three Commissioners, consistent with the appropriation language adopted by the Congress for FY 87 and the language we are proposing for FY 88. While the issue of the optimal number of Commissioners remains under discussion, no resource adjustments are necessary. Funding for the decision to change the size of the Commission to a single administrator or to the currently-authorized number of five would require an adjustment in the fiscal year in which the change is implemented.

Answer 3: For reasons indicated in my answer to question one, I strongly favor changing the quorum requirement to two members as long as the Commission structure is a three member body. Such an action is imperative if the Commission is to conduct its business in an expeditious manner. Presently, any one member can prevent the Commission from being able to discharge its responsibilities mandated by law. Finally, permit me to note for the record that I concur fully with Commissioner Dawson's answers to the questions regarding the structure and the management of the Commission.

Commissioner Dawson-

These three questions lend themselves to a comprehensive answer that addresses all three points.

Answer: Section 4(f)(1) of the Consumer Product Safety Act (CPSA) makes it clear that "The Chairman of the Commission shall be the principal executive officer of the Commission, and he shall exercise all of the executive and administrative functions of the Commission...."

But the Chairman's authority is circumscribed in the very next clause of the CPSA. Section 4(f)(2) says, "In carrying out any of his functions under the provisions of this subsection the Chairman shall be governed by general policies of the Commission...." The CPSA also requires the Chairman to be governed by the general policies of the Commission in the hiring of agency officials. See Sections 4(g)(1), (g)(2), and (g)(3) of the CPSA.

The Chairman may disagree with what a majority of the Commission decides, but the CPSA does not empower him to veto a Commission decision or refuse to carry it out. If the Commission structure is to have any significance, the entire collegial body must have the ability to decide on matters that have a policy implication or that impact upon the operation of the agency.

As Commissioner Graham and I detailed in our letter to the Committee on January 16, 1987, there is a dispute dealing with a specific action by the Chairman. On August 11, 1986, the Chairman announced his intent to make three major reorganizations. On August 18 and August 25, a majority of the Commission informed the Chairman that it disapproved two of the reorganizations, pending an official Commission meeting on the matter. For over three months, the Chairman, for various reasons, failed to attend Commission meetings that had been scheduled to discuss and vote on that subject, as well as the issue of a proposed general policy statement. (The CPSA requires that three Commissioners constitute a quorum to do business; at that time, there were only three Commissioners serving.) The Commission was therefore unable to resolve the issue.

On December 11, 1986, during Commission deliberations on its fiscal year 1987 operating plan (an exercise in which the Commission reallocates funds and shifts personnel as needed), a majority of the Commission voted to rescind two of the Chairman's reorganizations. At the time of this vote, the majority of the Commission still had been unable to meet and vote on the proposed general policies mentioned above. Nevertheless, it was perfectly appropriate and in keeping with precedent for the Commission to address reorganizations during its regularly scheduled operating plan meeting. The vote on the reorganization issue was 2 to 1, with the Chairman casting the dissenting vote.

Operating plan documents subsequently provided to Congress reflected the Commission's decision on reorganization, detailing the placement of personnel according to the Commission's vote. When the Commission's fiscal year 1988 budget was transmitted to Congress on January 15, 1987, however, even though that document contained appropriations requests approved by the Commission, the staffing tables reflected the Chairman's previous reorganizations that were reversed through the official Commission vote of December 11, 1986. For that reason, Commissioner Graham and I declined to sign the document, as previously stated in our letter of January 16, 1987.

The appropriations limitation providing the agency three (as opposed to five) Commissioners has affected the Commission's ability to discharge its responsibilities only in that the statute

requires that three Commissioners be present at Commission meetings to conduct any business. A quorum requirement is certainly necessary, but I feel it should be one that permits a majority of the Commission to do its work. It is my view that changing the quorum requirement to two would improve agency operations.

Any decision by Congress with regard to the number of Commissioners would have a budgetary impact. The reduction from five to three Commissioners has already produced a savings of $500,000 a year. The question Congress must consider, though, is whether the product safety decisions and the overall direction of the agency are more prudently carried out by a single individual or through consensus decisions of a collegial body. Given the fact that the Consumer Product Safety Commission has not just one or two but more than 15,000 different types of items under its jurisdiction, it is nearly impossible for any single person to have the necessary background, experience and skill to set desirable national policy on such a wide array of products. The task is eased, and continuity is provided, by having several decisionmakers who invariably bring differing perspectives to the process. The reduction of the number of Commissioners from five to three seems to be a prudent compromise between the desire to hold down spending and a recognition of the advantages of collegial decisionmaking.

LOGAN BUILDING MOVE

Question: Last year, Congress mandated that CPSC Headquarters move from the Logan Building in downtown Washington to its Bethesda location. What is the status of that move? Please describe the budgetary and programmatic impacts that the move has entailed.

Answer: As of December, 1986, the Logan Building in the District of Columbia was vacated and the consolidation of CPSC offices at Westwood Towers in Bethesda was completed. The total cost of the move to date has been $25,770, including $16,179 for labor services, $2,341 for building access and $7,250 for removal and reinstallation of telephone lines. Since the General Services Administration needed the office space at Logan, they relieved the Commission of any rent obligation after the end of December. We have been billed $61,000 for the first quarter, saving $183,000 over the course of the year. No funds are included for the Logan Building in the 1988 request.

VOLUNTARY STANDARDS

Question: Commissioner Dawson's statement highlights the Agency's effort on voluntary standards -- indicating a concern over the level of CPSC involvement in this area. Is there an issue within the Commission as to the level of CPSC participation in the "crafting of voluntary standards?"

Chairman Scanlon-

Answer: My view is that the desirability of voluntary standards development is not an issue amongst the Commissioners. However, one of my colleagues, Commissioner Dawson, has expressed concern on several occasions, the latest being at the Subcommittee's

February 27 hearing. As I understand it, her reservation is related to the frequency with which the Commission participates in the crafting of such standards.

My own view, based on the 1981 Consumer Product Safety Act Amendments which mandate deferral to voluntary standards when they show evidence of being effective, is that voluntary standards should be pursued whenever possible with the level of involvement being determined on a case-by-case basis. If it appears a monitoring role is all that is necessary to see that an effective voluntary standard comes to pass, then the CPSC's involvement should be limited to that extent.

Vice Chairman Graham-

Answer: Since Congress established the voluntary standards process in 1981, these standards have generally proven to be an effective means of achieving certain product safety goals. I have favored their adoption whenever they prove to be the more appropriate method for achieving consumer protection. I am not at all sure that such a generalization is possible, because voluntary standards are technically diverse, reflect a wide array of safety problems and solutions, and are negotiated with industries which vary widely in size and scope.

This is a process, therefore, that is best evaluated on a case-by-case basis, rather than as an organic whole. It is my feeling that the Commission sets the policy and should determine the level of participation with regard to each voluntary standard decision.

Commissioner Dawson-

Answer: As a matter of general principle, I strongly support the use of voluntary standards in lieu of more drastic action when those standards will provide adequate protection for the public in a cost-effective, timely fashion. My concern is not with the principle of cooperating in the development of voluntary standards but rather the extent of the agency's participation in the development of those standards.

The voluntary consensus standards-setting process in the private sector predates the formation of the Commission by a century, at least. During that time, it has worked well. Accordingly, I approach the issue of Commission involvement in that process rather cautiously.

Intervention by the Commission in voluntary standards creation, no matter how minimal, represents a potential for Federal intrusion into the marketplace. Such intervention should be reviewed carefully to assure that there is in fact a need for it. If there is no need, then the voluntary standards system should be allowed to function as a private activity, as it has historically.

I am concerned about the agency's involvement in too many voluntary standards activities without objective analysis of whether they address hazards of sufficient magnitude to warrant

government intervention. When the Commission contemplates "participation" in the development of a standard, it should consider whether the hazard involved meets the criteria of unreasonable risk of injury or substantial product hazard that our statute directs us to address. Once the federal role becomes too intrusive, voluntarism is compromised. In our zeal to work with the voluntary standards-setting process, we must be careful not to end up imposing another layer of federal rules on the marketplace.

My point to the Committee, then, is that a decision to devote considerable staff and dollar resources to "participation" in voluntary standards should be a Commission decision that is preceded by an objective evaluation of its merits, based on the criteria outlined in our statute.

This is not to say that I quarrel with the staff's continuing dialogue with standards-setting organizations. The CPSC has a wealth of expertise and technical proficiency that can and should be shared informally with voluntary standards groups in working toward consensus safety standards. I endorse such continued activity. It should be carried out as a routine activity, however, without rising to the level and scope of full-scale participation in developing specific voluntary standards.

The Commission continues to devote the bulk of its hazard program resources to activities involving voluntary standards. With declining resources available, I believe it is essential that such resources are wisely spent. Since I have expressed these concerns at various times during my tenure, I believe that the staff is now making an effort to assure that Commissioners have an opportunity to review such projects and approve their implementation.

SUPPLEMENTAL REQUEST

Question: Is the $496,000 supplemental request the full estimate of what will be borne by the agency for pay and retirement or does it exclude the pay cost portion of these mandated increases?

Answer: The supplemental request represents only that portion of the mandated increase necessary for costs of the new Federal Employee Retirement System. It excludes the pay cost portion of the increases.

Question: What is the amount in FY 1987 associated with pay increases and how is this cost being absorbed?

Answer: The January 1987 pay increase is projected to cost the agency an additional $501,000, and the Executive Level and Senior Executive Service pay increase effective in February is projected to cost an additional $33,000. Only $496,000 is being requested as a supplement, since the Commissioner's increase which should have gone into effect on March 1 is not included, nor is the additional contribution required for their retirement costs under the new system.

The Commission has approved a plan to absorb these increases by achieving savings in salary costs ($350,000), travel expenditures ($92,000), and common cost overhead expenditures ($92,000). The salary savings will be achieved by normal attrition in the filling of Commission vacancies during the year, in combination with a careful internal review of all overtime requests, temporary employment proposals and other personnel actions. Travel costs for Commission offices and directorates will be reduced by 15 percent by carefully scrutinizing each trip and restricting travel to those trips essential to ongoing program work. Common cost savings have, for the most part, already been achieved as a result of our vacating the Logan Building in downtown Washington earlier than planned, saving a full fiscal quarter in rent charges for the year.

RENT COSTS

Question: Why are rent costs increasing in FY 1988 when the Logan Building costs are being eliminated?

Answer: Rent costs are increasing in 1988 due to an overall rate increase for space currently occupied by CPSC. This is based on a GSA estimate provided the Commission and known cost increases for certain CPSC occupied buildings. Since Logan Building costs have been eliminated from the 1987 estimate, the 1986 to 1987 comparison of rental payments shows the reduction in Logan Building costs.

Questions Submitted by Senator Domenici

BIENNIAL BUDGET CYCLE

Question: Calls for budget reform are increasingly heard as budget deadlines are too often missed, important budget decisions are delayed, appropriation bills and other direct spending legislation are held up in committee, and omnibus spending bills take the place of timely and orderly consideration of individual bills. One procedural reform that is being considered is the two-year budget cycle where budget and appropriations matters would be considered in the first year, and authorizations and oversight would be undertaken in the second year.

Would your department/agency favor a biennial budget process? What benefits would your agency achieve in a two-year appropriation cycle?

Answer: The Consumer Product Safety Commission generally favors a two-year appropriation cycle. The Commission has, in the past, suffered from the instability of annually fluctuating resource levels, particularly staff levels (FTEs) and associated salary costs. In some years, even the annual appropriation, once approved, has been subsequently adjusted for purposes such as absorbing pay raises and accommodating to the Gramm-Rudman-Hollings sequestration. These fluctuations and the underlying resource uncertainties create significant problems in trying to develop and adhere to a viable annual operating plan. Not only is it difficult to rely upon resources continuing to remain available for projects which we assume are approved, but the Commission is never sure whether sufficient numbers of qualified staff will be available to complete those projects in subsequent fiscal years.

A two-year budget cycle would first and foremost impose stability upon the agency's internal budget and planning process. Both the dollar amount and staffing available for the two year period would be known in advance, and a rational program plan could be developed. During the period the Commission could see many hazard projects and information campaigns through to completion, as they are usually funded for two fiscal years or less.

A relatively minor benefit would be savings in the cost and time involved in preparing and justifying our annual budget requests. Although budget development would only occur every second year, the request would need to include twice as many hazard projects, priority projects, information campaigns, and standards monitored for conformance. More thought would need to be given to the policies and priorities reflected in the budget since the Commission would be committed to this operational plan for a longer period of time. For the same reason, the budget would most likely be subject to more careful review by OMB and the Congress. The savings which would occur in staff time required for budgeting would thus be minimal.

ANNUAL BUDGET REPETITION

Question: Approximately what proportion of your annual

appropriation request would you consider simply repetitious of the previous year's submission?

Answer: While not necessarily repetitious in the budget narrative, approximately one-half of the Commission's annual budget request is required to simply maintain ongoing program and administrative support activities which change little from year to year. Some examples are as follows: maintaining the engineering and health sciences laboratories and laboratory support functions; continuing the NEISS data collection system; conducting Section 15 activities to remove hazardous products from the marketplace; maintaining the information clearinghouse; and conducting routine agency management functions such as contract management, budget, computer support, executive direction, and legal guidance.

Numerous changes are made each year in the other one-half of our budget request. Priority projects are selected and approved each year, and a significant part of our budget request is devoted to them. Most projects comprising the Hazard Assessment and Reduction program are either a new effort that year or a significantly different phase of a project continuing from prior years, since these projects are usually completed after a year or two. Similarly, economics studies, voluntary standards being monitored for conformance, information campaigns conducted on specific product hazards, and regulated products reviewed for industry compliance can and do vary each year. In addition, changes in overall funding and staff levels often affect the program output level of other projects such as the number of information documents printed, the number of hazard investigations conducted, and the number of Hotline calls which can be answered. These outputs are reviewed and adjusted annually, even for projects where there is otherwise no material change in the manner in which they will be conducted.

DIFFICULTIES WITH TWO-YEAR BUDGET

Question: What difficulties can you foresee in preparing and submitting a two-year budget to the Congress?

Answer: The Commission can foresee several difficulties involved in preparing and executing a two year budget. Other problems may, of course, arise once a two-year system is actually implemented. However, we believe any difficulties could be overcome and, on balance, the advantages considerably outweigh the disadvantages.

Some of the potential difficulties involved in a two-year budget process, both minor and major, include:

- o Unforeseen Product Hazards - A great deal of CPSC's work involves addressing imminent product hazards in a timely fashion. Since new products are always entering the marketplace, and new information often identifies dangerous aspects of existing products, it would be even more difficult to project which specific hazards we will need to work on 2-3 years in advance than it is to project 1-2

years in advance. The Commission may need to be more general in budgeting for, and justifying, hazard program work.

- Increased Reprogramming - A related consideration is the number of reprogramming requests made after the appropriations bill is passed. Most of the Commission's reprogrammings address unforeseen hazard needs such as those discussed above; All-Terrain Vehicle (ATV) work, for example, has necessitated reprogrammings in fiscal years 1985, 1986, and 1987. Planning for a longer future time period may make it more difficult to accommodate unexpected resource needs, increasing the number of reprogramming requests made to Congress.
- Increased Supplemental Requests - For the same reason, there may be more supplemental requests necessary to pay for pay raises or unforeseen program needs. In the absence of a supplement, it may be more difficult to absorb "second-year" cost increases once an Agency has already obligated half or more of its funds in the first year.
- Uncontrollable Adjustments - The annual budget request anticipates certain uncontrollable cost increases, such as inflation, GSA rent increases, costs of elective employee contributions to the new FERS retirement system, postal rate increases, executive salary increases, etc. To the extent that actual experience does not bear out our assumptions, it is more difficult to budget 2-3 years in advance than 1-2 years in advance.
- Increased Funding Flexibility - Because budget estimates would be projected further in advance, agencies may need more flexibility in addressing budget targets included in their justification. Among these would be personnel compensation estimates versus other object classifications, travel ceilings, estimated reimbursements, and staffing levels by program. Agencies must continually adjust their targets based on changing conditions but, other than reprogrammings, Congress would not be aware of them for two years.
- Year End Spending - At worst, this is expected to be only a minor problem at the Commission. There may be an increased tendency to delay obligations until the end of the two-year period, creating in effect "two-year end spending" similar to, but larger in amount than, year-end spending problems. This would be controlled through careful internal project management.

OPPOSITION TO BIENNIAL BUDGET

Question: If you oppose the biennial budget concept, please give this Subcommittee your reasons why.

Answer: The Commission supports the biennial budget concept, and believes that most of the difficulties identified in the previous question would be resolved following operational experience under the new system.

QUESTIONS SUBMITTED BY SENATOR GRASSLEY

(DIRECTED TO CHAIRMAN SCANLON)

MONIES TO THE CFA/TMA

Question: You have been criticized for expenditures for food and entertainment in conjunction with your CPSC/Toy Manufacturers Press Conference. It is my understanding you have taken corrective action. However, are you able to keep track of the funds given to such efforts as the Consumer Federation of America to make certain similar misappropriation of funds do not occur?

Shouldn't you have such an auditing system?

It concerns me that the Commissioners didn't even approve this money to the CFA, as Commissioner Dawson stated.

Answer: Each year the Commission develops an annual budget and operating plan on a detailed basis, identifying all large contractual efforts and projects which comprise the scope of work for the upcoming year. Within the total plan, however, there is provided some degree of management flexibility to make contract awards which are consistent with the general purposes intended by the Commission, yet which take into account such factors as responses to Requests for Proposals, interest expressed by outside parties, changes in cost estimates, and exigencies noted during the year. Each year there are numerous individual transactions within each of the 27 operating allowances. It would be impractical for all the Commissioners to review and approve each award before it is made.

In order to ensure that annual appropriations are used for the purposes and in the amount intended by Congress, the Commission has promulgated a fund control directive which is monitored by the Budget Office and which includes potential penalties for violations. The Commission also has an Internal Audit function in place to report illegal or potentially compromising activity directly to the Chairman. I believe these, combined with document reviews routinely conducted by the Contract and Accounting offices, are sufficient to identify and prevent any misuse of funds.

DEPARTMENT OF HEALTH AND HUMAN SERVICES

OFFICE OF CONSUMER AFFAIRS

STATEMENT OF VIRGINIA H. KNAUER, SPECIAL ADVISER TO THE PRESIDENT FOR CONSUMER AFFAIRS

ACCOMPANIED BY:

ROBERT F. STEEVES, DEPUTY DIRECTOR, OFFICE OF CONSUMER AFFAIRS

FRANK R. MARVIN, DIRECTOR, MANAGEMENT STAFF, OFFICE OF CONSUMER AFFAIRS

SHIRLEY C. CAROZZA, DIRECTOR, DIVISION OF OS BUDGET SERVICES, DEPARTMENT OF HEALTH AND HUMAN SERVICES

BUDGET REQUEST

Senator PROXMIRE. Our next witness is Mrs. Virginia Knauer, the Director of the Office of Consumer Affairs.

The Office of Consumer Affairs is requesting an appropriation of $1,119,000 in fiscal year 1988, a reduction of $631,000 below the appropriation.

Mrs. Knauer, it is a pleasure to welcome you once again to the subcommittee. You may summarize your testimony if you wish, with the understanding that your prepared statement will be submitted in full to the record in its entirety.

SUMMARY OF ACTIVITIES

Mrs. KNAUER. Thank you very much, Mr. Chairman and members of the subcommittee. We are pleased to be here today to reinforce the need for funds to continue the activities of the U.S. Office of Consumer Affairs in fiscal year 1988.

As a federal agency, OCA is unique in two respects. First, it is the only executive branch policy office that addresses cross-cutting issues exclusively from a consumer perspective. There are often consumer issues that are of interest to many agencies, but sometimes no agency has the predominant or comprehensive role in an issue that affects consumers. Complaint handling is one of these issues. Second, we are a catalyst to motivate the private sector to meet the needs of consumers. In the past, OCA leveraged $6 in private funds for every $1 investment in OCA funds.

NATIONAL CONSUMERS WEEK

In the 1986 National Consumers Week, over 400 local and national events reached 75 million persons at a cost to OCA of two FTE's and $22,000. Nonfederal contributions amounted to approximately $0.5 million.

Mr. Chairman, I would just like to show you some examples of this cooperative effort. Here is a poster for National Consumers Week 1987. It was printed by Sears & Roebuck at no cost to the government. This is the fourth year that Sears has done this using their own funds. Here is another NCW publication. This is one of 200,000 flyers printed by the National Futures Association. They will help to alert a great many people about the program. Incidentally, the theme this year for National Consumers Week is "Consumers Celebrate the Constitution." So, we list the consumers' bill of rights on the cover of flyers and posters.

This is a publication titled, "How To Run a Consumer Week." It costs the 7-Up Co. about $20,000 to print some 20,000 copies for distribution. We have not used OCA funds for development of this type of basic information on NCW. Instead, we have obtained cooperation from the private sector.

CONSUMER'S RESOURCE HANDBOOK

Work has begun on the fourth edition of our very popular Consumer's Resource Handbook. It is a guide for persons who have a problem in the purchase of goods and services. With the help of 20 agencies, copies of the handbook have reached 4 million individual citizens. Frankly, use of the handbook makes common sense. It is also a reliable reference for civic, media, and consumer groups that handle consumer inquiries and complaints. It leads to a more efficient response to citizen inquiries by both government and business.

In April 1986, OCA released an update of our original study, "Consumer Complaint Handling in America," that we initiated in the mid 1970's. We found considerable progress in the use of cost-effective strategies such as toll-free numbers and the use of complaints to address the root causes of consumer problems.

The cover story in the February 3 issue of Time magazine called "Pul-eese, Will Someone Help Me?" shows that customer service is emerging as the competitive battleground and providing the opportunity for accelerated progress for consumers. Our update study identified major national corporations such as General Electric and General Motors, which have recognized this and acted on the recommendations in our original study.

I am indeed pleased that on April 3, 1987, we will again sponsor a Constituent Resource Exposition in the House Cannon Caucus Room. It will bring together 1,000 congressional caseworkers and experts from some 40 federal agencies who can help expedite replies by federal agencies to congressional constituent inquiries.

DEFICIT-CUTTING MEASURES

Turning to 1988, Mr. Chairman, we are aware of the need for each program, no matter how small, to bear its fair share in helping to reduce the cost of the federal deficit by cutting operating expenses.

Our budget request for 1988 totals $1,119,000 for a staff of 15. That is a reduction of $713,000 and seven persons from the comparable 1987 level.

There will have to be changes in OCA. We will deemphasize operational activities. Instead, we will encourage the private sector to undertake more programs while we concentrate more on policy-level interaction with government agencies and national constituent groups.

We will seek to have virtually all the costs of jointly sponsored conferences on major consumer issues underwritten from other than OCA resources.

OCA will urge national organizations to carry the lead in encouraging business to recognize the positive effect that improved responsiveness to consumer complaints has on profitability and competitiveness. An OCA initiative to improve accessibility for disabled persons in the marketplace will also stress more independent direct private sector action.

CONSUMER EDUCATION PROGRAM

We will stress an innovative consumer education program initiated in fiscal year 1987 by OCA with the American Association of Community and Junior Colleges. It uses the principle of forming partnerships among local business, educators and government to serve consumer needs through continuing lifelong consumer education.

OCA, GPO, and the Consumer Information Center will seek to meet citizen needs for OCA publications through the adoption of user fees for some of the OCA publications such as the Consumer's Resource Handbook, distributed from the CIC facilities in Pueblo, Colo.

OCA will represent the United States in the OECD and other international forums to advance consumer issues as the United States and other nations address the challenging issues of trade. There is an imperative need to foster a better understanding of the way specific measures could affect the availability, quality and price of goods to American consumers.

Through these changes, we seek to continue to carry out the more policy-oriented aspects of our mission at significantly lower cost to the taxpayers.

I would certainly be pleased to respond to any questions you may have, Mr. Chairman.

[The statement follows:]

STATEMENT OF VIRGINIA H. KNAUER

Mr. Chairman and Members of the Committee, my senior staff and I are pleased to be here today to reinforce the need for funds to continue the activities of the United States Office of Consumer Affairs (OCA) in Fiscal Year 1988. Our responsibilities in OCA are to work with government, business and constituent groups to encourage activities which recognize the interests, role and responsibilities of American consumers in the free enterprise system.

OCA is unique in two respects. First, it is the only Executive Branch policy office that addresses cross-cutting issues exclusively from a consumer perspective. There are often consumer related issues that are of interest to many or all Federal government agencies, but sometimes no agency has the predominant interest or capability to serve in a coordinating role. Complaint handling is one of these issues. Second, we serve as a cost-effective catalyst to motivate the private sector in meeting the needs of consumers. With a staff of 22 and a limited budget, of course we cannot provide the day-to-day oversight of operating activities nor can we underwrite the costs of national programs. But, business and constituent groups and other governmental groups can and do help to meet these limitations. In the past, public sector participation in OCA initiated projects and activities enabled OCA to leverage $6 in private funds for every $1 investment of OCA appropriated funds. Also, we rely on the multiplier capacity of the news media, 41 Federal agency members of the Consumer Affairs Council, consumer groups and non-Federal officials to provide a low cost network to exchange ideas and to bring visibility to successful programs.

Our formal justification provides pages of details of examples of

our past successes in consumer education, representation and redress. Let me mention a few of these.

In December 1986 OCA and the Better Business Bureau co-sponsored a conference in Washington on the "New Role of the States in the Marketplace." We brought leaders of business and constituent groups together to discuss the impact of state legislation and regulations focusing on issues such as product safety, financial services, advertising and telephone rate regulation. The cost to OCA was $500 and less than one-quarter person year of staff effort.

In November 1985 we sponsored a workshop in Washington on reducing direct marketing fraud - one of the leading problems for consumers, particularly the elderly. The cost to OCA was $1,000 and less than one quarter person year effort. It resulted in independent industry sponsored and funded meetings in Chicago and New York to develop ways to combat fraud through increased communication and information sharing among law enforcement and responsible industry officials. We understand industry has scheduled more of these meetings.

We have the responsibility for implementing and stimulating participation in National Consumers Week, an annual Presidential initiative. In the 1986 National Consumers Week, over 400 local NCW events reached 75 million persons at a cost to OCA of two FTE and $22,000. Private sector and other non-Federal contributions of support amounted to approximately one-half million dollars. And this event often provides the focus and motivation for consumer program announcements and improvements.

As part of a pilot information program, a two-minute video news release was beamed by satellite to 800 TV stations in December 1986 offering holiday shopping tips to help consumers protect

themselves during the rush of buying. Reports from stations project some 40 million viewers were reached with this message. (The cost to OCA was $6,000 for a contract and staff time of about one-eighth of a person year).

Work has begun on the fourth issue of the Consumer's Resource Handbook, a "what to do, where to go" guide for persons who have a problem arising out of the purchase of goods or services. No single agency has the predominant interest in producing and distributing such a document, but with the coordination of OCA staff and the help of 20 agencies, copies of previous editions of the Handbook have reached four million individual citizens. Use of the Handbook makes common sense. It provides a reliable reference tool, not only for individuals, but for offices and groups that consumers contact for assistance. It leads to a more efficient response to complaints and inquiries by both government and business.

In April 1986 OCA released the results of the Consumer Complaint Handling in America Update study sponsored by five agencies of the Consumer Affairs Council. The initial study is credited with revolutionizing complaint handling practices. The Update revealed that considerable progress has been made by government and business in processing marketplace complaints and made specific recommendations for further proven, cost-effective strategies, such as providing toll free telephone numbers, and stressed addressing the root causes of consumer problems. Incidentally, a by-product of this Update is an analysis which suggests significant savings to agencies through increased productivity in handling complaints.

Mr. Chairman and Members of the Committee, I am indeed pleased to advise you that on April 3, 1987 we will again sponsor a "Constituent Resource Exposition" in the House Cannon Caucus

Room, bringing together Congressional caseworkers and experts in some 40 Federal agencies who can help expedite replies by Federal agencies to Congressional constituent inquiries. Congressional staffers can also become more familiar with the wide range of agency services and sources of assistance. The February 15, 1985 Expo was attended by more than 1,000 Congressional staff workers. We hope for even better attendance this year.

Mr. Chairman, we are aware of the need for each program, no matter how small, to bear its fair share in helping to reduce the cost of the Federal deficit by cutting FY 1988 operating expenses. Our budget request for 1988 totals $1,119,000 for support of a staff of 15, a reduction of $713,000 and 7 staff from the comparable 1987 level.

Our intention in 1988 is to continue to serve as a catalyst for exemplary consumer program initiatives. But, we will de-emphasize ad-hoc operating activities. Instead, we will encourage the private sector to undertake more self-help programs of mutual benefit to citizens and business. Our staff will concentrate more on policy-level interaction with Executive Branch agencies, national constituent groups and non-Federal governmental bodies involved in consumer programs.

Details of program changes begin on page 9 of our justification. The following are highlights.

OCA staff effort involved in directly designing and conducting conferences on major consumer issues will be further reduced. Instead, the staff will participate in such forums, thus saving staff time involved in planning and organization, and associated costs for printing, postage and related facilities support. The private sector and non-Federal government groups will be asked to

underwrite virtually all the costs of these jointly sponsored consumer programs and activities.

Building on the results of the year-long study of complaint handling practices, OCA will continue stimulating trade and professional publication coverage of the bottom-line benefits of productive consumer complaint handling, and urge national organizations to develop a broader recognition of the positive impact that improved responsiveness to consumer complaints has on competitive position and profitability. An OCA sponsored national program to improve accessibility for disabled persons to the marketplace will also stress more independent direct private sector action.

OCA will encourage consumer education programs in and between governments, education, business and voluntary groups. A high priority will be further development of an innovative program initiated in FY 1987 by OCA with the American Association of Community and Junior Colleges. OCA will seek to foster development of community level consumer education activities through our nation's 1,200 junior and community colleges. The program would promote both formal and informal educational programs to serve students and other citizens, especially the elderly, on a continuing, life-long learning basis. It uses the principle of forming "partnerships" among local business, educators and government to meet community needs.

With regard to programs of information and education, we do expect others to build on the models and procedures developed through years of OCA sponsored programs, and to more aggressively undertake those initiatives with modest OCA encouragement. This not only covers National Consumers Week, but development of publications such as the OCA/Union Oil Company's Your Keys to

Energy Efficiency and OCA/American Institute of Certified Public Accountants' Choosing a Credit Card.

OCA, the Government Printing Office and Consumer Information Center officials will seek to meet citizen needs for OCA sponsored publications such as the Consumer's Resource Handbook through adoption of user fees for some of the OCA publications distributed from the CIC facilities in Pueblo, Colorado.

Among OCA's priority programs will be representing consumer interests in OECD and other international forums as the United States and other nations address the challenging issues of trade as pressure mounts worldwide for increased trade measures. There is an imperative need to foster a better understanding of the way specific measures could affect availability, quality and price of goods to American consumers.

Finally, Mr. Chairman, in 1988 we will initiate some intra-OCA administrative steps to increase our efficiency and to trim expenditures. We expect to do this in part by substituting limited use of commercial messenger service for a staff messenger, by making more extensive use of microcomputers to reduce support personnel, and by seeking a reduction in the number of HHS requests for review of routine fiscal, personnel and property management procedures.

Through these changes we continue to carry out the more policy-oriented aspects of our Executive Orders at significantly lower cost to the taxpayer.

We would be pleased to answer any questions you may have.

INTRODUCTION OF ASSOCIATES

Mrs. KNAUER. May I introduce my Deputy, Mr. Robert Steeves, and Mr. Frank Marvin, who is Director of our Management Staff, and Mrs. Shirley Carozza. She is the Director of the Division of OS Budget Services in the Department of Health and Human Services.

CHANGE IN APPROPRIATIONS PROCESS

Senator PROXMIRE. Thank you very much, Mrs. Knauer.

Mrs. Knauer, Senator Domenici has suggested that we explore the possibility of passing a 2-year appropriations bill. Would that approach create any particular problem for the Office of Consumer Affairs, or do you see a benefit in having to justify your budget only once every 2 years?

Mrs. KNAUER. I think that the proposed change would be fine.

Senator PROXMIRE. Make it 5 years. [Laughter.]

Mrs. KNAUER. I don't think I will be here in 5 years, but it is an idea.

Senator PROXMIRE. Well, you are a young lady, but you have been here awhile.

MEETINGS WITH PRESIDENT REAGAN

Mrs. Knauer, you also serve as Special Adviser to the President on Consumer Affairs. Did you have any meetings with President Reagan last year?

Mrs. KNAUER. Yes. Just as recently as last week we went to the Oval Office, and the President signed the proclamation which establishes National Consumers Week for 1987.

Senator PROXMIRE. Can you tell us what issues you discussed with the President either at that meeting or at previous meetings?

Mrs. KNAUER. Well, we discussed involving the private sector in our various activities. He thinks that is a very good idea.

INTERNATIONAL TRADE

Senator PROXMIRE. On page 12 of your justification, you say that, "There is an imperative need to foster a better understanding of the way trade protection measures would increase costs to consumers."

Exactly how would you accomplish that goal during 1988?

Mrs. KNAUER. We feel that international trade directly affects the availability and cost of goods and services that all consumers purchase, and we certainly intend to encourage a greater understanding on the part of consumers. We don't think that they read enough about trade issues. I think they don't realize how goods they buy in the market and the services they contract for are part of the consumer's stake in world trade.

We would like to foster ways in which consumers can more actively comment on trade policy developments. We would certainly want to increase media attention to the consumer perspective through conferences, written materials, speeches, and by working with business, government, and consumer leaders on a worldwide basis.

If private funding can be found in fiscal year 1988, our Office would give priority to convening a national level conference or symposium to highlight current trade policy issues and to increase consumer comment on them.

Senator PROXMIRE. I think that is fine. I have witnessed very strong support for foreign trade from many retailers, particularly those who buy foreign shoes and compete with shoes that are made in Wisconsin. I think all Members of Congress are sensitive to that aspect of it.

It seems to me there ought to be some kind of a balance here. We need to let consumers know that we do make high-quality goods in this country and that there is an advantage in buying American. I would hope that there is no single-minded stress on buying abroad.

As you know, we have a very, very serious trade deficit, a deficit of $50 billion with the Japanese alone, and a deficit that is $130 or $140 billion internationally.

It is a very serious problem. Every $1 billion we buy from abroad means 25,000 or 30,000 jobs that are transferred abroad. The deficit is so big that that is millions of jobs that we are losing.

Mrs. KNAUER. I realize that, and what we can strive for, Mr. Chairman, is to achieve a balance by enabling more consumers to understand all the issues. It is not just a matter of buying cheaper shoes or other products from abroad, but it is to achieve a balance by becoming more actively involved and more aware of the impact of trade.

CONSUMER COMPLAINTS

Senator PROXMIRE. On page 13 of your justification, you mentioned a reduction in service provided by your Office for the 2,000 persons who called or sent written complaints to OCA every year because of the proposed budget reduction. Exactly what will the impact be on individual consumers who contact your Office after the budget reduction?

Mrs. KNAUER. We will continue to receive the telephone calls that come in. That comprises about 10 percent of our total complaints. But, in the case of the hundreds and hundreds of people who write to us when they become frustrated and don't know where to turn, we would have to send them a reply and enclose a copy of the Consumer's Resource Handbook.

Senator PROXMIRE. You will continue to do that?

Mrs. KNAUER. Yes.

Senator PROXMIRE. How will you reduce your service? You mention a reduction in service to the people who call or send written complaints. All Members of Congress have that same problem. We have to service our constituents, giving special consideration to those who write or call in because they make a special effort. I hope there won't be any diminution in the availability of information for people who call in.

Mrs. KNAUER. We would continue to stress use of our Consumer's Resource Handbook. One-quarter of a million copies of our latest edition of the handbook went to Members of Congress.

Senator PROXMIRE. But you are talking about a reduction. How do you make a reduction without compromising that?

Mr. Steeves?

Mr. STEEVES. By the time we get the complaints they usually have been considered without success by many other people. We now have on our staff people who are very knowledgeable about how to effectively handle complaints, who actually deal with the problem presented in the letter. And we often resolve the problem. It might have been that they couldn't get their car fixed or their arbitration panel was not responsive.

What we indicate in the budget for 1988 is that in the future we will not deal with the merits of the complaint but instead we will send them the Consumer's Resource Handbook and say, "In this handbook, you will find the resources to help deal with your problem."

This is just a labor-intensive activity, and we are reducing the staff commitment for 1988 by one-half an FTE. That is just the reality of how we would have to handle individual complaints.

Senator PROXMIRE. That is a good response. I understand that. Perhaps you have to do that. It is regrettable that it means consumers will have less of an opportunity to be served. Some will be able to deal with their complaints on their own; some will not.

Mr. STEEVES. That is correct.

REDUCTION IN FORCE

Senator PROXMIRE. Your staff support, Mrs. Knauer, would be reduced by seven positions under your budget request. How do you plan to accomplish that, and will there be any reductions in force?

Mr. MARVIN. By working closely with departmental officials, we can address any personnel reductions. As vacancies do occur now we appoint individuals for a limited term, so they are not permanent career officers. Thus we feel that we would be able to cover the cut in our staff without a reduction in force.

In a worst-case scenario, I would see a maximum of $100,000 obligated. Two-thirds of that would be for personnel services and the balance of about $30,000 would cover changes in the office space, telephone wiring, and so forth. But that would be a worst-case scenario.

EFFECT OF STAFF REDUCTIONS

Senator PROXMIRE. Your staffing levels have decreased substantially over the past few years. If Congress endorses the current request, you will have lost almost half of your staff since 1986, dropping from 29 to 15.

What changes would you make in your operating plan to accommodate the latest proposed staffing cuts?

Mr. MARVIN. Mr. Chairman, with regard to our first program objective—increasing innovation, competition, and consumer choice—we would have to reduce the number of policy-level meetings from 100 to 80 and the number of related followup staff level contacts from 600 to 500.

We would have to reduce the number of OCA-sponsored conferences from two to perhaps only one and we would have to reduce by one person the direct level of staff involved in encouraging adoption of recommendations from our consumer complaint update study. And we would also have to reduce by one person the amount of direct involvement in encouraging industry to adopt specialized programs for the disabled persons, programs such as those providing disabled persons access to restaurants and transportation systems.

In total, our commitment to increasing innovation and competition would be reduced by two and one-half persons. We would make a similar reduction in the education and information programs, and user fees would be adopted for publications distributed by the CIC in Pueblo.

We would try to retain our Consumer Council activities at the current level since we are down at rock bottom with one-half person-year effort. But, we would eliminate one and one-half persons from the administrative support side through our elimination of a messenger and a reduction in complaint handling.

Senator PROXMIRE. I strongly favor cutting back spending wherever we can, and I don't think we can make exceptions. On the other hand, your agency has had an enormous reduction of about 50 percent over 2 years and 30 percent this year alone.

It seems to me that this is unfortunate because we have a nation of consumers, and it is a more and more puzzling economy for consumers. The products are becoming more complicated.

You have done a terrific job of holding spending down, and I certainly admire that. On the other hand, we want to do what we can to see that consumers get the best service possible. It is a tough problem to reconcile.

USER FEES

You estimate savings of $300,000 through the adoption of user fees for publications distributed through the Consumer Information Center.

What effect would user fees have on OCA publications distributed during 1988 compared with other years?

Mrs. KNAUER. Unfortunately, I don't think it would be good. Recent discussions with CIC officials suggest a user fee for the Consumer's Resource Handbook would be about $2.50 to maybe $2.75. For other OCA publications, user fees would be less.

But we would hope that CIC would aggressively market the handbook and other publications through the media. I understand that past experience suggests that when a user fee is added to a popular publication like the Consumer's Handbook that is distributed to 4 million people, that there is a sharp reduction in demand. People just are not going to pay $2.50 for any publication, even if it is as outstanding as the handbook.

The CIC estimates that maybe as few as 10,000 copies of the handbook would be requested if there is a user fee attached. In 1986, CIC

distributed 683,000 publications for OCA including 375,000 Consumer's Resource Handbooks. We anticipate in 1988 that maybe 10,000 would be distributed.

Senator PROXMIRE. Are you saying that you distributed 683,000 in 1986 but with a user fee you would distribute only 10,000?

Mrs. KNAUER. Between 10,000 and 20,000.

Senator PROXMIRE. So you would lose about 98 percent of what you are currently distributing.

Mrs. KNAUER. Yes; and even more devastating, Mr. Chairman, would be the loss to consumers who depend upon publications such as the handbook. We distribute it now to professional complaint handlers in the news media. In Washington, Paul Berry of TV Channel 7's program, "Seven on Your Side" estimates that each of his staff and volunteers use it an average of 20 times a day. That comes out to 72,000 uses of this single publication per year at one television station.

We also distribute the handbook widely across the country to consumer action lines and business, consumer, and civic groups, as well as local government offices. State groups use it for information because we provide details on a state-by-state basis and we make it as reliable as possible. We are pleased that the Members of Congress have requested a quarter of a million copies of the latest issue which they, in turn, send out to their local offices for free distribution.

INFORMATION AND EDUCATION PROGRAMS

Senator PROXMIRE. Mrs. Knauer, page 4 of your justification says, and I quote, "OCA information and education programs will rely more heavily on commercial news media and others who have the capacity to multiply the message and thus reach large numbers of consumers."

Can you expand on that a little bit? For example, does OCA plan more press conferences and television or radio public service announcements to get the word out?

Mrs. KNAUER. Yes. I do a lot of speaking at large conventions and other meetings of large groups of decisionmakers, as well as interviews with the press and audiovisual presentations. I would hope we would be able to continue all that.

We also experimented with more extensive use of satellites by transmitting a TV news spot. Well, it was quite impressive, and the cost was modest; I think it was something like $6,000. The spot was aired in December and advised consumers on how to protect themselves while Christmas shopping and by careful use of credit cards and that sort of general information. It was picked up by hundreds of TV stations, and they estimated that it reached millions of persons.

Mr. STEEVES. According to a followup survey, our pilot news spot was aired to a viewing audience of at least 5.5 million and possibly as many as 40 million persons.

But equally important, it was used as a feature in prime time news. Usually public service announcements are aired in the very early hours of the morning. Other information can be piggy-backed by TV stations

onto this type of spot. It was the first time that we had used a news spot to make a video with questions and information we thought was valuable to individual consumers. Apparently, the stations thought so, too, because they picked it up.

I believe that over 800 stations used it. Our contractor surveyed only one-third of that number and we got this amazing record of use. We hope to do a few more news spots to the extent our budget permits.

Senator PROXMIRE. Thank you very, very much, Mrs. Knauer for an excellent presentation, and I thank your accompanying witnesses. We appreciate it very much.

Mrs. KNAUER. Thank you.

SUBMITTED QUESTIONS

[The following questions were not asked at the hearing but were submitted to OCA for response for the record:]

Questions Submitted by Senator Proxmire

Proposed Reorganization

Question: Mrs. Knauer, the Office of Consumer Affairs (OCA) may be a rather small agency in terms of budget and staff but it has a strong survival instinct. Last year the Administration wanted to incorporate OCA into an enhanced Office of the Special Adviser to the President for Consumer Affairs. The fiscal 1987 budget request would have cut OCA's budget by 79% and staffing levels would be dropped from 30 to 5. The current request represents a turnaround in some respects. Although there's a 36% reduction proposed next year in new budget authority, there doesn't appear to be any immediate plan to reorganize OCA. Is this correct? How do you account for the change?

Answer: Reducing the OCA staff to 15 FTE might require a reorganization to ensure maximum efficient operations. One possible organizational configuration is shown on page 14 of the FY 1988 budget justification. However, we plan to consult with the HUD-Independent Agency Appropriation subcommittee prior to adoption of any change in the present USOCA organizational structure.

Request to OMB

Question: What was the level of your request to OMB?

Answer: The FY 1988 budget submitted by HHS to OMB included 5 FTE and $412,000 for USOCA. It was based on the Administration's FY 1987 budget which in September 1986 was still under consideration by the Congress.

National Consumers Week

Question: Your opening statement and Justification place high priority on the annual National Consumers Week. What changes would be made in resources to be applied to this program if we approved your 1988 budget submission and what would be the effect?

Answer: Our budget for 1988 provides for about one-half the staff and related funding previously allocated to National Consumers Week. In the short run we believe that with initial kick off, such as the Annual Presidential Proclamation, National Consumers Week can continue. Beginning in 1988 government, business, educators and consumer groups will be expected to independently undertake the programs at the local level.

Over the past couple of years we have experimented with taking a lower profile in staffing of NCW events and rely more heavily on simply participating in events developed and staffed by others. This has worked reasonably well and permitted us to devote our direct efforts to encouraging others to undertake suitable activities. I believe that with absence or reduction in our staff reinforcement or encouragement, the momentum that we have built up over the last six years would rapidly wane.

Thermometers

Question: On page 6 of your Justification you refer to OCA efforts to produce a standard for low-temperature mercury-in-glass thermometers. Why can't industry or other Federal agencies handle this issue?

Answer: The voluntary standard-setting organization for thermometers, The American Society for Testing and Materials, has set a standard for a mercury-in-glass low-temperature thermometers to measure hypothermia. It will also serve to measure fever adequately for most uses. Since we secured their cooperation, FDA has been very supportive of our work with ASTM. Industry will move where it sees a market. The problem in hypothermia has been educating industry, consumer groups and health professionals about the size and importance of the problem. With help from the non-profit Center for Environmental Physiology, the American Association of Retired Persons and the National Consortium of Energy and Aging, OCA is uniquely positioned to coordinate this effort.

Independent Action by Non-Federal Groups

Question: Your opening statement and page 4 of your budget Justification assume the private sector and other governmental groups will independently build on promising initiatives resulting from past cooperative efforts while OCA assumes a more policy oriented role. What evidence do you have to support that expectation?

Answer: We have excellent examples of strong and positive reaction from the business sector to requests from OCA to participate in joint ventures. Our National Consumers Week efforts include a half-million dollars in contributed support each year. Business and consumer groups also readily join in sponsorship of conferences, workshops and pilot programs. We hope that will continue.

Private Sector Cooperation

Question: Page 8 of your Justification refers to your success in getting the recommendations from the mid-70's study, Consumer Complaint Handling in America, adopted and the expected positive impact from the April 1986 Update. What will be the effect of the reduction of one FTE on the business targeted campaign related to the Update study mentioned on page 9 of your Justification?

Answer: Although articles on the findings and recommendations of the Update have appeared in numerous trade and management journals, as well as the general press, and several thousand copies of the report have been distributed we have found that the personal encouragement and assistance of our professional staff is often vital to motivate trade associations and individual companies to adopt the recommendations. Thus the beneficial impact that accrues from the study findings on consumers and on the competitiveness of American firms is greatly enhanced.

Other Services

Question: Your request would cut $337,000 from the object classification "other services." Tell us what is included under this object classification and what is assumed in the reduction.

Answer: The following is a summary by major activity

Activities to be covered by funds provided under object class 25 (other services)

Activity	1987 Operating Plan	1988 Request	Explanation of Charges 1987-1988
Distributing Publications through the Consumer Information Center	329,000[1/]	-0-	User fees are expected to cover the majority of costs in 1988. If there are savings in OCA programs they will be applied to this activity.
Newspaper Clipping Service to monitor consumer related issues	3,000	-0-	While of value, OCA staff will seek to find and use other services of information to monitor trends.
Support services for conferences and workshops	20,000	10,000	Private sector and other governmental groups would be expected to cover more costs. OCA would also undertake fewer conferences.
Contractural Analysis and technical advice	80,000	10,000	Eliminated would be assistance in programs such as more independent living by disabled persons, international trade, and bottom line benefits to business through improved complaint handling.
Audio Visual Programs	12,000	12,000	
Working Capital Fund	(82,000)	85,000	Covered in 1987 under HHS General Department Management Account

Activities to be covered by funds provided under object class 25 (other services)

Activity	1987 Operating Plan	1988 Request	Explanation of Charges 1987-1988
Miscellaneous e.g. employee training, health service, management training, office services, etc.	16,000	6,000	Emphasis will be on fewer and less costly training programs, and cutting costs wherever possible.
Work Orders	8,000	9,000	Office space changes
Office Machine Maintenance	14,000	13,000	Elimination of HHS ADP support service
Total	482,000	145,000	

1/ GSA estimates suggest costs could range from $300,000 to $348,00 for the historic level of 860,000 publications depending on total CIC costs at the Pueblo, Colorado facility.

Questions Submitted by Senator Garn

CIC

Question: You propose to terminate distribution of free publications from the CIC for a savings of $300,000. What publications are involved?

Answer: The following are publications presently being considered by the USOCA staff as most suitable for distribution through CIC in FY 1988:

1. Consumer's Resource Handbook
2. Your Keys to Energy Efficiency
3. Special Report on Cold Stress and Heat Stress
4. Home Remodeling
5. Everybody's Walking for Fitness
6. Credit Repair
7. Consumer Complaint Handling Update (Industry Summary)
8. Consumer Education - Suggested Guidelines
9. Consumer Education and International Trade
10. Kerosene Heaters
11. Access Travel
12. Home Equity Loans

Restorations

Question: Congress rejected the full cut requested in the FY 1987 President's budget. If your FY 1988 budget were to be "frozen" at the FY 1987 level - what activities, in order of priority, would you seek to restore?

Answer: If the FY 1988 budget for the U.S. Office of Consumer Affairs were to be frozen at the FY 1987 level we would seek to fund restoration of OCA activities progressively in the following sequence.

1. $210,000 to continue distribution of Consumer's Resource Handbooks (600,000 copies) from Consumer Information Center facilities at Pueblo, Colorado.

2. One staff person to provide 50% restoration of FY 1988 reductions in: (a) OCA National Consumers Week (NCW) initiatives and (b) other Consumer Education programs.

3. One staff person to provide 50% restoration of FY 1988 reductions in programs to: (a) encourage business to adopt recommendations for bottom line benefits in the Consumer Complaint Handling in America - Update Study and (2) to encourage the private sector to improve access of disabled persons to the marketplace.

4. One staff person to write speeches, brief articles for the print media and develop a more comprehensive audio-visual program.

5. One person to provide for full restoration to FY 1987 levels of NCW and consumer education activities referenced in 2, above.

6. One person to provide for full restoration to FY 1987 levels of business-related complaint handling initiatives and programs for the disabled referenced in 3, above.

7. $90,000 for the balance of 260,000 OCA sponsored publications to be distributed by the CIC. These would be on types of energy conservation, health, safety, credit, international trade and other issues of vital interest to consumers.

8. One person to provide for (a) staff review of proposed legislative and regulatory actions at the 1987 level and (b) to fully respond to individual citizen complaints on marketplace problems received by OCA.

9. One staff person to provide messenger service which would otherwise be covered by rotation among OCA employees and/or a private firm under contract. (This person would actually spend more half time typing and performing other office support activities).

Concurrent with the increase in staffing OCA would seek to curtail expenditures for equipment, supplies and related office support activities as well as to encourage HHS officials to reduce charges to OCA for the Working Capital Fund.

Budget Cuts

Question: Your budget is proposed for a reduction of more than a third and your statement alludes to a "de-emphasis of ad-hoc operating activities." Please describe this "de-emphasis" and explain what impact it will have on the effectiveness of your office.

Answer: For many years the staff of OCA has developed pilot programs and sponsored conferences and other activities to encourage other Federal agencies and non-Federal groups to undertake education, information and representation programs of interest to consumers. The Energy and Aging Consortium is an example of a successful pilot initiative to provide voluntary assistance in helping consumers, particularly the elderly, to meet utility bills. It has been adopted in many communities across the country. National Consumers Week is another example of an OCA-sponsored program reaching hundreds of communities across the country.

But with such initiatives in place and with more limited resources, the OCA staff would not undertake nor maintain as much staff support for operational programs. We believe that will result in more emphasis on working with the private sector through OCA's well established networks such as the Energy and Aging Consortium, the agencies of the Consumer Affairs Council and the Consumer/Business Financial Services Forum.

We hope that the many years of staff effort to establish innovative and progressively more self sustaining initiatives will result in attainment of OCA policy-oriented goals at significantly lower cost to the American taxpayer.

Questions Submitted by Senator Domenici

Biennial Budget Cycle

Question: Calls for budget reform are increasingly heard as budget deadlines are too often missed, important budget decisions are delayed, appropriation bills and other direct spending legislation are held up in committee, and omnibus spending bills take the place of timely and orderly consideration of individual bills. One procedural reform that is being considered is the two-year budget cycle where budget and appropriations matters would be considered in the first year, and authorizations and oversight would be undertaken in the second year. Would your department/agency favor a biennial budget process? What benefits would your agency achieve in a two-year appropriation cycle?

Answer: Yes, we in the U.S. Office of Consumer Affairs would favor a biennial budget. Benefits would be a significant reduction in staff effort to prepare for the annual review, and an enhanced ability to plan programming and staffing resources more effectively.

Question: Approximately what proportion of your annual appropriation request would you consider simply repetitious of the previous year's submission?

Answer: Approximately half.

Question: What difficulties can you foresee in preparing and submitting a two-year budget to the Congress?

Answer: Adoption of a biennial budget would require efforts to anticipate future events and needs in more concrete terms than is now required for annual budgets, and some mechanism to adapt to emerging trends and issues. OCA's program reflects economic interests and trends which sometimes shift substantially over short time frames.

GENERAL SERVICES ADMINISTRATION

CONSUMER INFORMATION CENTER

STATEMENT OF TERESA N. NASIF, DIRECTOR, CONSUMER INFORMATION CENTER

ACCOMPANIED BY WILLIAM B. EARLY, JR., DIRECTOR OF BUDGET, GENERAL SERVICES ADMINISTRATION

BUDGET REQUEST

Senator PROXMIRE. Our final witness this morning is Ms. Teresa Nasif, the Director of the Consumer Information Center.

The Center is requesting an appropriation of $1,339,000 in fiscal year 1988. That is an increase of $67,000 over the current budget.

Ms. Nasif, it is a pleasure to welcome you to the subcommittee. You may summarize your testimony with the understanding that your prepared statement will be printed in the record in its entirety.

You might introduce the gentleman who is accompanying you.

Ms. NASIF. This is William Early, who is Director of our Office of Budget at the General Services Administration.

Senator PROXMIRE. Thank you, Mr. Early.

Ms. NASIF. I will summarize my opening statement.

Senator PROXMIRE. Go right ahead, fine.

OPENING STATEMENT

Ms. NASIF. Mr. Chairman and members of the subcommittee, I appreciate the opportunity to be here today to discuss the fiscal year 1988 budget request for the Consumer Information Center.

We had a very good year in fiscal year 1986. We saw a 31-percent increase to approximately 9.3 million in the number of publications ordered by American consumers. In the process, the Consumer Information Center program generated $2,267,000 in revenue for the government, which was 23 percent higher than in any previous year.

These distribution increases have come at a time when strict budget constraints require every agency to carefully evaluate publication objectives. It is apparent that agencies continue to consider us to be an efficient and cost-effective mechanism for promoting and distributing information to the public on important subjects such as Federal benefit programs, credit, health, and safety.

No other program fulfills the government's continuing need for intensive nationwide promotion of vital messages and for fulfillment of the resulting high volume of publication orders.

In order to multiply limited government resources, we pursue several

major efforts. These efforts enable agencies to accomplish more with less and include the following: First, CIC liaison officers work closely with business associations and professional groups to obtain private sector help in CIC's cooperative publishing program. Through this program, consumer information is made available to the public with costs shared by federal agencies and the private sector.

Second is our low-priced publication, or 50-cent program. Although agencies continue to offer to the public without charge many publications considered essential, in cases where important publications might not otherwise be distributed because of funding constraints, we have originated the low-priced publication program. Developed in collaboration with the Government Printing Office, this program makes selective publications available only through CIC at a cost to consumers of 50 cents each.

As agencies move toward fee-for-service operations, CIC will likely experience a gradual increase in the proportion of sales publications in fiscal years 1987 and 1988. However, in cooperation with GPO, we have succeeded in restraining costs so that in fiscal year 1986, the average price of a sales publication listed in the catalog was only $1.26.

Third, CIC continues to perform special marketing projects with the support and approval of this Appropriations Subcommittee. Funded by monies in the CIC fund, the projects are cost-effective tools for making the public aware of available Federal consumer information. Examples include: Providing the Consumer Information Catalog to newspapers to print at their expense as an advertising supplement, and also printing an insert offering free consumer booklets for inclusion with checks sent to recipients of Veterans Administration benefits.

Fourth, CIC works closely with the media to inform citizens about important federal information as well as how to obtain the actual booklets. Radio and television stations, newspapers, and magazines make the information available as a public service free of charge to the government. CIC's fiscal year 1986 television public service announcements alone received approximately $4.5 million in free broadcast time.

In summary, these programs are some of the reasons why the Consumer Information Center continues to be a good value for the public and for participating federal agencies. In fiscal years 1987 and 1988, it will be a challenge for us to repeat the levels of distribution that we have had in fiscal year 1986, but we intend to fully commit ourselves to the challenge. Our constant objective is to creatively multiply limited resources in order to reach consumers in all 50 states with vital federal messages at a minimal cost to the government.

We hope the subcommittee will look with favor upon our budget request so that in fiscal year 1988, agencies can continue to rely on cost-effective CIC programs to enable them to educate and inform citizens.

I would be happy to answer any questions at this time.

[The statement follows:]

STATEMENT OF TERESA N. NASIF

Mr. Chairman and Members of the Subcommittee, I appreciate the opportunity to be here today to discuss the fiscal year 1988 budget request for the Consumer Information Center (CIC).

The CIC assists Federal agencies in their efforts to reach citizens nationwide with important information about their programs. The CIC promotes public awareness of this valuable Federal information through publication of the quarterly Consumer Information Catalog and through various media services. In addition, the CIC coordinates distribution of Federal consumer publications from a centralized facility in Pueblo, Colorado. In FY 1986, we saw a 31 percent increase--to approximately 9.3 million--in the number of publications ordered by American consumers. In the process, the CIC program generated $2,267,000 in revenue for the government, which was 23 percent higher than in any previous year.

These distribution increases have come at a time when strict budget constraints require every agency to carefully evaluate publication objectives. It is apparent the agencies continue to

consider the CIC to be an efficient and cost-effective mechanism for promoting and distributing information to the public on important subjects such as Federal benefit programs, credit, health, and safety. No other program fulfills the government's continuing need for intensive nationwide promotions of vital messages and for fulfillment of the resulting high volume of publication orders.

In order to multiply limited government resources, the CIC pursues several major efforts. These initiatives are designed to enable agencies to accomplish more with less, and include the following:

1. CIC liaison officers work closely with business associations and professional groups to obtain private sector help in CIC's cooperative publishing program. Through this program, consumer information is made available to the public with costs shared by Federal agencies and the private sector. Examples of cooperative publications include How to Buy a Manufactured Home and Money Matters. CIC, the Manufactured Housing Institute, and the Federal Trade Commission (FTC) worked together to develop the former

which deals with the selection and installation of mobile homes. Money Matters gives advice on selecting financial planners, real estate brokers, and tax preparers. It was developed by the American Association of Retired Persons and the PTC for distribution through CIC.

2. Agencies continue to offer to the public without charge many publications considered essential, relating to Federal benefit programs, nutrition, and health. Nevertheless, in cases where important publications would not otherwise be distributed because of funding constraints, we have originated the Low-Priced Publication (or 50¢) Program. Developed in collaboration with the Government Printing Office, this program makes selected publications available only through CIC at a cost to consumers of 50¢ each. As agencies move towards fee-for-service operations, CIC will likely experience a gradual increase in the proportion of sales publications in FY 1987 and FY 1988. However, in cooperation with the GPO, we have succeeded

in restraining costs so that in FY 1986 the average price of a sales publication listed in the Catalog was only $1.26.

3. CIC continues to perform special marketing projects with the support and approval of this Appropriations Subcommittee. Funded by monies in the CIC Fund, the projects are cost-effective tools for making the public aware of available Federal consumer information. Examples include (a) providing the Catalog to newspapers to print at their expense as an advertising supplement, and (b) printing an insert offering free consumer booklets for inclusion with checks sent to recipients of Veterans Administration benefits.

4. CIC works closely with the media to inform citizens about important Federal information as well as how they can obtain the actual booklets. Radio and television stations, newspapers, and magazines make the information available as a public service free-of-charge to the government. CIC FY 1986 public service announcements

for television alone received approximately 4.5 million dollars in free broadcast time.

In summary, these programs are some of the reasons why the Consumer Information Center continues to be a good value for the public and for participating Federal agencies. I must admit that it will be quite a challenge for us to repeat in FY 1987 and FY 1988 the levels of distribution we've had in FY 1986, but we intend to fully commit ourselves to the challenge. Our constant objective is to creatively multiply limited resources in order to reach consumers in all 50 states with vital Federal messages at a minimal cost to the government. We hope this Subcommittee will look with favor upon our budget request so that in FY 1988 agencies can continue to rely on cost-effective CIC programs to enable them to educate and inform citizens. I would be happy to answer any questions at this time.

TWO-YEAR BUDGET CYCLE

Senator PROXMIRE. Thank you very much, Ms. Nasif.

As you have noticed, I have asked the previous witnesses about the 2-year budget cycle. That is of interest to Senator Domenici, but also to all of us in the Congress.

How do you feel about a 2-year budget cycle? Do you think any problems would be created by that approach, or would the Senate benefit by that action?

Ms. NASIF. We do not have any program problems, but I believe Mr. Early would like to speak to it.

Mr. EARLY. We would have no problem with it at all, sir. We would support a biannual budget, and the President's budget does reflect the 1989 requirements of $1,365,000.

OMB REQUEST

Senator PROXMIRE. How does the Center's budget request differ from your initial budget submission to OMB?

Ms. NASIF. Our budget request to Congress is the same as submitted to OMB.

Senator PROXMIRE. There is no change from your OMB submission?

Ms. NASIF. We were very fortunate; they approved it as submitted.

Senator PROXMIRE. You certainly were.

MATERIALS ON AIDS

On page 2 of your prepared statement, you refer to the fact that federal agencies consider your operation to be an efficient and cost-effective mechanism for promoting and distributing information to the public on important subjects such as health and safety. There has been a great deal of controversy lately about educating the public with regard to the AIDS menace. Are you involved with the distribution of any materials on AIDS?

Ms. NASIF. We list one publication entitled, "Facts about AIDS" which discusses the information known to date about this disease and what individuals can do to help prevent the disease.

We are also working with the Department of Health and Human Services to develop a more comprehensive publication. The tentative title is, "When Someone Close Has AIDS." It is intended for persons who are caring for AIDS victims.

So we hope shortly to have two publications on the subject.

FREE TITLES

Senator PROXMIRE. On page 18 of your justification, you indicated that last year's average catalog listed 208 publications of which more than 45 percent were free.

Do you expect this free publication percentage to remain pretty constant over the next few years?

Ms. NASIF. Over the last 3 years, it has remained constant at the mid-40-percent range. I believe that it will be reduced somewhat, probably

to the lower 40-percent range. For example, our spring catalog is 43 percent free, so we are seeing a reduction in the number of free titles.

Agencies decide whether to offer a booklet without charge through our program or at a fee, and if they decide to offer it without charge to the public, they pay both the printing and distribution costs. As they face budget constraints, they sometimes prefer to put it into a sales program whereby they don't have to pay the printing and distribution costs.

We also have a third alternative, the 50-cent program. Federal agencies pay for the printing of the publication, and consumers pay 50 cents to cover the distribution costs. We are seeing a number of agencies moving toward the 50-cent program.

Senator PROXMIRE. Would your experience confirm that of Mrs. Knauer, who indicated that when they go to user fees, which is something similar, that they have as much as a 99 percent dropoff?

Ms. NASIF. There is a very sharp dropoff. Generally, we distribute 90 to 95 percent fewer copies when a publication that was free becomes a regular GPO sales booklet. So it is a considerable dropoff.

PRICE OF SALES PUBLICATIONS

Senator PROXMIRE. Your justification says that the average price of a sales publication dropped, which is good news, from $1.65 in 1985 to $1.26 in 1986.

Does that represent a trend or a 1-year anomaly?

Ms. NASIF. We hope it is a trend. The Government Printing Office has done an excellent job of restraining the sales prices of its popular consumer booklets. The other factor is that with so many agencies choosing to go into the 50-cent program, the average sales price drops.

I believe that the average sales price will remain under the fiscal year 1985 level of $1.65. We expect that it will remain in the price range between $1.26 and $1.65.

NUMBER OF PUBLICATIONS DISTRIBUTED

Senator PROXMIRE. Your agency had a 31-percent increase in publications distributed. It went from 7.1 million in 1985 to 9.3 million in 1986. What are your projections for the number of publications you expect to distribute in fiscal years 1987, 1988, and 1989?

Ms. NASIF. We are projecting that we will stabilize at the 9.5 million level. Fiscal year 1986 was a very good year for us. We had three extremely valuable and popular publications available to us with publishing agency commitment to full promotion and distribution.

Senator PROXMIRE. What were those?

Ms. NASIF. First, the Consumer's Resource Handbook, which is funded by the U.S. Office of Consumer Affairs and is one of the most requested books in the history of the Consumer Information Center.

We also had "Nutrition and Your Health: Dietary Guidelines for Americans," which was a high priority from the Department of Agriculture. They wanted to bring to the American public important

nutritional information and advice on improving dietary intake. The third publication was from the Department of Education and was entitled, "What Works—Research About Teaching and Learning." It was a very high priority with Secretary Bennett summarizing all that is known on how to make a school system successful and how children can learn more effectively.

These three publications were very popular with our audience. Their presence in the catalog may have motivated people to order other booklets at the same time.

In fiscal year 1988, we will no longer have "Nutrition and Your Health," and the fate of the Consumer's Resource Handbook is uncertain. It will be difficult to surpass the distribution levels that we have experienced in fiscal year 1986.

PUBLIC SERVICE MATERIALS

Senator PROXMIRE. On page 26 of your justification, you indicated your plan to spend $160,000 for the preparation and distribution of public service materials. How does that compare with your current public service materials budget?

Ms. NASIF. It is exactly the same. In fiscal years 1987 and 1988 we have budgeted $160,000 for the preparation of these materials.

Senator PROXMIRE. One of the most spectacular developments you have here is that you indicate in your prepared statement that in 1986, public service announcements for television alone received about $4.5 million in free broadcast time.

The entire budget of your agency is about $1.6 million.

Ms. NASIF. The administrative expenses portion totals $1,664,000 in fiscal year 1987.

Senator PROXMIRE. This is about three times what your budget is in free broadcast time. How did you arrive at that estimate?

Ms. NASIF. We contracted with a media monitoring service for the month of August 1986 to measure usage of CIC announcements by the 3 networks and the 75 top local television markets. They also included six cable networks. Their estimates of the value of broadcast time for CIC for that 1 month was $650,000. Using the conservative estimate that our spots would be used for only 6 months—when, in fact, we know they are used longer than 6 months—the estimate came to about $4 million. Taking into consideration that 125 smaller metropolitan markets were not included in that monitoring and that we do know the spots are used year-round, I am certain $4.5 million is a conservative estimate.

Senator PROXMIRE. What evidence do you have that your public service materials expenditures are producing results?

Ms. NASIF. Tens of thousands of people write to the coded address used in our public service spot. This enables us to count the number of people that respond to the spot on television.

We also know that advertising reinforces the concept of Pueblo, Colo., in the mind of the public. This name recognition helps to fuel the success of many of our other media promotions.

Senator PROXMIRE. Ms. Nasif, I want to thank you. You are a very impressive witness. You certainly are thoroughly informed on the activities of your agency, and it is most impressive testimony.

SUBMITTED QUESTIONS

We have a number of questions to which we would appreciate your response for our hearing record.

[The following questions were not asked at the hearing but were submitted to the Center for response for the record:]

Questions Submitted by Senator Proxmire

CIC -- SPECIAL PROJECTS

Question: Your justification indicates that you plan to spend $100,000 in FY 1987, and again in FY 1988 for "special projects". How will this money be spent?

Answer: The legislation establishing the CIC Fund in July 1983, enabled CIC to undertake special projects using monies from the Fund. To date, CIC has conducted 14 projects with the goal of increasing CIC's marketing reach and/or its publication distribution.

Requiring Subcommittee approval, examples of FY 1987 and FY 1988 planned projects are:

(1) IRS Flyer ($50,000) - Distribution of flyer offering Consumer Information Catalog in 6 million packets of tax information mailed by IRS to citizens.

(2) VA Insert ($10,000) - Distribution of insert offering free consumer booklets in 3 million checks mailed to VA benefit recipients.

From FY 1983 to the end of FY 1986, CIC has spent approximately $250,000 on special projects. However, since many of these special projects generate orders for Catalog publications and therefore user fee revenue, the net cost of these projects has been approximately $80,000. In the process, we generated requests for 3.3 million publications.

CIC -- GRADED POSITIONS

Question: The table on page 25 of your justification indicates your staff is experiencing a substantial amount of grade creep. To be more specific, in 1986 your staff included 5 at the GS-7 level and only 4 at the GS-11 and 12 level. Your projection for 1988 shows only 1 at GS-7 and 7 GS-11's and 12's. This is a big shift in an agency of 20 people.

Have the Center's responsibilities grown more complex or does this grade creep simply reflect the fact that you now have a staff with longer government service?

Answer: During the last several years, we have made a conscious and determined effort to control grade increases by hiring employees at entry levels. Between FY 1983 and FY 1986, we filled 9 out of 11 vacancies at the GS-5 or GS-7 level. We have been fortunate that most of these individuals have stayed with us and

have earned promotions on the career ladder. This is reflected in the increase in the projected number of employees at the GS-11 and 12 level for 1988. We don't give promotions gratuitously, people have to earn them. But we do have good people and they do tend to stay.

CIC -- REVOLVING FUND

Question: Ms. Nasif, your statement and the budget justification make brief mention of the Center's revolving fund which I understand Congress authorized a few years ago. Perhaps you might provide us with more details concerning the fund's operations. What I'm looking for is the total picture for last year - and what the pool of available resources might look like in fiscal year 1988. As I understand it, there are five components to the revolving fund - one of which is the annual appropriation. The other four include reimbursements from other agencies, user fees collected from the public, other income incident to the Center's activities, and prior year unobligated balances. What's the total amount currently available?

Answer: The total available resources currently estimated for FY 1987 are $4,894,509. They include (1) an appropriation of $1,272,000 for salaries and expenses provided in the current year's Continuing Resolution, (2) estimated FY 1987 agency reimbursements of $2,389,000 for the distribution of publications, (3) estimated FY 1987 fees collected from the public of $375,000, (4) other income of $66,000, and (5) an unobligated balance of $792,509 brought forward on October 1, 1986.

Question: How does this compare with last year and next year's estimate?

Answer: The actual available resources for FY 1986 totalled $4,739,788, compared to the FY 1988 estimate of $4,997,000.

Question: On a percentage basis, tell us what the $1,339,000 in the budget request represents in the revolving fund next year?

Answer: The FY 1988 requested appropriation of $1,339,000 represents 26.8 percent of FY 1988 estimated available resources of $4,997,000.

Question: How does this compare with last year when the appropriation was $1,182,000?

Answer: The FY 1986 net appropriation of $1,182,261 represented 24.9 percent of total resources of $4,739,788, compared to the 26.8 percent estimated for FY 1988.

Question: How much do you estimate will be deposited into the fund next year in agency reimbursements and what percentage does this represent?

Answer: FY 1988 estimated agency reimbursements will total $2,529,000, representing 50.6 percent of FY 1988 estimated available resources of $4,997,000.

Question: Is this more or less than actual 1986 deposits?

Answer: It is an increase of $334,400 or 4.3 percent more than actual FY 1986 agency reimbursements of $2,194,600, which represented 46.3 percent of FY 1986 available resources.

Question: What's the breakout for user fees?

Answer: Fees collected from the public totalled $382,161 in FY 1986, representing 8.1 percent of available resources. They decrease to an estimated $375,000 in FY 1987, representing 7.7 percent of available resources. They return to an estimated $382,000 in FY 1988, representing 7.6 percent of available resources.

Question: The fund also includes other income incident to the Center's activities. Can you tell us a little more about this?

Answer: The other income category is a repository for miscellaneous receipts and includes such payments as funds from private sector organizations for the distribution of consumer publications through the CIC; and payments from Congressional offices for the costs of imprinting services for Consumer Information Catalogs obtained from the CIC for constituents.

Question: What's the breakout?

Answer: Other income totalled $132,300 in FY 1986, representing 2.8 percent of available resources. The estimated $66,000 for both FY 1987 and FY 1988 represents 1.3 percent of available resources for each year.

Question: You also have access to prior year unobligated balances under the budget vehicle. What was the unobligated balance in fiscal 1986 and how does that compare with current estimates and next year?

Answer: The unobligated balance brought forward on October 1, 1985, was $848,466. It is $792,509 for FY 1987 and will be an estimated $681,000 for FY 1988.

Questions Submitted by Senator Garn

USER FEES

Question: Your budget justification indicates user fee collection will drop to $375,000 in FY 1987 but will recover back $382,000 in FY 1988. To what do you attribute this fluctuation?

Answer: This estimated fluctuation reflects CIC's projection of a slight decline during FY 1987 in orders from consumers for publications listed in the Consumer Information Catalog. These projections indicate that the number of orders during FY 1988 will return to the FY 1986 level.

ADVERTISING COUNCIL

Question: In prior years your agency received support from the Advertising Council for publicity on available Federal publications. Has such support continued?

Answer: Many of the earlier CIC public service campaigns were listed (for a fee) in the Advertising Council's bi-monthly newsletter, Bulletin. The Ad Council did not provide any financial or technical support to CIC, other than recommending our campaigns, along with others, to television public service directors as worthy of consideration.

CIC was unable to measure any direct benefit from this listing, and television public service directors across the country assured us that CIC spots did not require Ad Council endorsement in order to be selected for broadcast. Although CIC did not apply for Bulletin listing in 1985 or 1986, our psa's were shown nationwide and received approximately $7.7 million worth of free air time during this time period.

ELECTRONIC MEDIA

Question: What efforts has CIC initiated to explore dissemination of consumer information by non-print means such as video tape or computer discs or by computer networking?

Answer: The Consumer Information Center (CIC) is always interested in pursuing new methods of reaching the public with valuable Federal consumer information, and has experimented with some non-print dissemination methods.

Several years ago, CIC worked with a number of test teletext systems to provide consumer information that viewers might interactively select to read on their tv screens. However, the teletext systems were not effective in reaching large numbers of people since most viewers were looking for up-to-the-minute comparative information on prices and features of brand name products or services. Since CIC information is generic, there was little call for it.

CIC is currently providing copies of its media releases highlighting specific publications to The Source, a nation-wide computerized database which is utilized by subscribers to their services. CIC releases are placed on the system in their features package and are available to any subscriber.

While we don't believe that the current state of new information technologies provides CIC with an efficient and cost-effective way to reach a large and diverse audience, we will continue to review new developments that might make them an effective supplemental avenue for distribution of Federal consumer information.

Questions Submitted by Senator Domenici

BIENNIAL BUDGET CYCLE

Question: Would your agency favor a biennial budget process? What benefits would your agency achieve in a two-year appropriation cycle?

Answer: Yes, the Consumer Information Center favors a biennial budget process. The primary benefit should be an approximately 50 percent reduction during the two-year period in staff hours spent in budget preparation and justification. This would enable managers and analysts to improve their programs by spending more time in planning, executing, and reviewing those programs.

Question: Approximately what proportion of your annual appropriation request would you consider simply repetitious of the previous year's submission?

Answer: Close to 100 percent.

Question: What difficulties can you foresee in preparing and submitting a two-year budget to the Congress?

Answer: We foresee no undue difficulties at this time.

SUBCOMMITTEE RECESS

Senator Proxmire. The subcommittee will stand in recess until Friday, March 6 at 10:15 a.m. in SD-124, when we will hear testimony from the Veterans Administration.

Ms. Nasif. Thank you.

[Whereupon, at 11:48 a.m. Friday, February 27, the subcommittee was recessed to reconvene at 10:15 a.m. on Friday, March 6.]

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT-INDEPENDENT AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1988

FRIDAY, MARCH 6, 1987

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:06 a.m. in room SD–124, Dirksen Senate Office Building, Hon. Charles E. Grassley presiding.

Present: Senators Proxmire, Mikulski, D'Amato, and Grassley.

VETERANS ADMINISTRATION

STATEMENT OF GEN. THOMAS K. TURNAGE, ADMINISTRATOR

ACCOMPANIED BY:

DR. JOHN A. GRONVALL, M.D., CHIEF MEDICAL OFFICER
RAYMOND J. VOGEL, CHIEF BENEFITS DIRECTOR
ARTHUR S. HAMERSCHLAG, ACTING CHIEF MEMORIAL AFFAIRS DIRECTOR
DONALD L. IVERS, GENERAL COUNSEL
CONRAD R. HOFFMAN, DIRECTOR, OFFICE OF BUDGET AND FINANCE (CONTROLLER)
DAVID A. COX, ASSOCIATE DEPUTY ADMINISTATOR FOR MANAGEMENT
SUSAN LIVINGSTONE, ASSOCIATE DEPUTY ADMINISTRATOR FOR LOGISTICS
ROBERT E. LINDSEY, JR., DIRECTOR FOR OPERATIONS
DAVID B. VAN HOOSER, DIRECTOR, INFORMATION RESOURCES MANAGEMENT OFFICE
MICHAEL RUDD, DIRECTOR, OFFICE OF PERSONNEL AND LABOR RELATIONS

PREPARED STATEMENT

Senator GRASSLEY. I am Senator Grassley, and I am not the chairman of the committee, which is very obvious. In fact, I am a minority member of the committee and feel privileged to be asked to start a meeting. I am very willing to do this because, to the extent that we can be timely and I can help my colleague, Senator Proxmire, I am very happy to do that.

While Senator Proxmire is not here, he has requested that his opening statement be inserted in the hearing record at this point. Without objection, it is so ordered.

[The statement follows:]

OPENING STATEMENT OF SENATOR PROXMIRE

Today we will hear from Gen. Thomas K. Turnage, Administrator of Veterans Affairs, and his subcolleagues regarding supplemental fiscal year 1987 funding and the fiscal year 1988 budget request of the Veterans Administration.

The Administration is requesting $299.7 million in supplemental funding for entitlement programs, pay increases, and the new federal retirement program with an offsetting rescission of $75 million in the medical care account. It is extremely unlikely that the rescission will be approved.

In fiscal year 1988 the VA is requesting almost $27 billion, an increase of approximately $900 million over current funding. Almost $15 billion of this total request, about half, is for entitlement programs over which this committee has no control. The largest proposed increase in the remainder of the budget is a 50-percent jump in minor construction spending. We will also be looking at a proposed $555.8 million increase in medical care costs, boosting appropriations for this account close to the $10 billion level although even with this additional spending it would be necessary to cut back medical care personnel. Another major budget increment is a proposed appropriation of $389.9 million to the loan guarantee revolving fund.

We'll be taking a particularly close look in the course of today's hearing at initial hardware procurement for a $1.2 billion decentralized hospital computer program. It may well be that it is premature to commit the $55 million the VA is proposing to spend on this procurement in FY 1987 and 1988. As I understand it, the VA's own consultants have raised serious questions about the wisdom of the current approach.

We're delighted to have you with us today, General Turnage. Your prepared statement, as well as those submitted by your colleagues, will be printed in the hearing record in full. You may go ahead and summarize your statement and then we'll proceed to questions.

Senator GRASSLEY. I am not the ranking Republican, but as a Republican member, I have several questions that I would like to ask you, General Turnage and your staff.

I will not make an opening statement, but I do want to welcome you here, and to say to you that this past week we have had many people from veterans organizations visiting with us, and this is the time of the year that the DAV, the VFW, the American Legion, and other veterans organizations come in.

We are always reminded of the good things you do, but we are also reminded of some of the things that our constituents think are problems, and those are the things that we would like to bring up with you, and suggest to you that we can cooperate in an effort to serve the needs of our veterans, not only present, but as we see a growing need for medical care for our veterans.

With that statement, I would suggest to you, under the usual rules of Senator Proxmire, whatever written statement each of you have will be printed in the record in full, and that we would appreciate a summary of your longer statements before we go to our questions.

Would you proceed. Are you going to have other staff members speak as well?

General TURNAGE. Yes, Mr. Chairman, I will have. I would like to have the full statement printed for the record, but I have an abbreviated one here, with your indulgence.

Senator GRASSLEY. Please go ahead.

ADMINISTRATOR'S OPENING STATEMENT

General TURNAGE. Mr. Chairman and members of the committee. I am grateful for the opportunity to appear before you today to present and discuss the Veterans Administration's fiscal year 1988 budget request.

INTRODUCTION OF ASSOCIATES

At the outset, let me suggest that I am privileged to be joined here by the new Chief Medical Director of the Veterans Administration, Dr. John Gronvall; by the Chief Benefits Director, Mr. John Vogel; by the Acting Chief of Memorial Affairs Director, Mr. Art Hamerschlag; by the Director of the Office of Budget and Finance, Mr. Conrad Hoffman; and the General Counsel of the Veterans Administration, Mr. Donald Ivers.

This is my first budget request in my current capacity as Administrator of the Veterans Administration. I look forward to this opportunity and pledge to work closely with the committee and its staff to better serve our veterans. I have enjoyed my association with this committee in the past as the Director of Selective Service, and I will continue that relationship.

I want to convey in the strongest and most sincere terms that we in the VA want to work with you cooperatively, congenially, and professionally in serving all eligible veterans pursuant to the laws that you have enacted. It has been my strong belief that most veterans consider themselves citizens first.

Most veterans are taxpayers who are genuinely concerned about federal deficits and the future of their families as well as their daily responsibilities and needs. They sympathize with the enormous task we face together in finding and allotting resources to the persons who need and deserve them.

The current budget deficit means that each of us must do our share, and certainly we are willing to do ours. Even so, in my judgment, the VA has fared exceptionally well. Let me emphasize that our job is not only a matter of meeting the obligations incurred yesterday and handling the responsibilities today, but it also entails preparing for the challenges of tomorrow.

BUDGET REQUEST

It is for this reason that the requested budget authority in fiscal year 1988 exceeds any VA proposal in history. The VA is requesting $27.6 billion to fund health care, compensation and pension, and other programs for our nation's 27.7 million veterans and their families. Permit me to briefly summarize the VA's fiscal year 1988 budget request, highlighting some of the agency's major accounts.

BENEFITS PROGRAM

First, in the benefits program, let me say first that this nation has, without question, the most comprehensive system of benefits to repay those who have contributed to the country's freedom through their service, and it is only fitting that the largest portion of this budget request

be for the benefits program, which at $15.4 billion constitutes 57 percent of our total budget request.

About two-thirds of these funds, or about $10.4 billion, will provide compensation payments to 2.2 million veterans and 323,000 survivors. Another $3.8 billion will provide pension payments to 1.2 million recipients. We are proposing to index compensation benefits to the consumer price index to ensure timely recognition of consumer price increases.

Keeping with the administration's efforts to obviate the need for unnecessary appropriations, we are proposing that the 1-percent funding fee in the home loan guarantee program be increased to 2.5 percent. The cost of this fee could be financed as part of the veteran's loan. The increased fee, if financed, would probably increase the average veteran's payment by less than $10 a month.

Let me assure you that the enactment of this proposal will not alter this program's primary mission of providing veterans with affordable housing without requiring a downpayment. As a matter of fact, today the Deputy Administrator and my executive officer are in Arizona commemorating the 12 millionth loan of this program. We estimate, for example, that for fiscal year 1988 we will be guaranteeing 340,000 loans.

As Administrator of the largest independent agency, one of my main objectives is to continue to look for ways to improve the efficiency of our service delivery. It is for this reason that the above request calls for such action as the consolidation of the St. Paul and Philadelphia insurance operations. This will produce an annual savings of $1.7 million per year after the consolidation is completed in fiscal year 1989.

HOSPITAL AND MEDICAL CARE PROGRAM

Mr. Chairman, perhaps the most visible of all VA programs is the VA's hospital and medical care program. Quality medical care for America's disabled and needy veterans is one of my, as well as the VA's, very highest priorities. Therefore, we are requesting a medical care budget of nearly $10 billion. The funds will provide for the medical care and treatment of 1.4 million inpatients and 20.4 million outpatient medical visits.

Over 190,300 full-time equivalent employees are requested to meet the medical needs of these veterans. In meeting these needs, we need a highly trained staff, and at present the VA, like other health organizations, is experiencing localized nurse and allied health personnel shortages.

To help alleviate these shortages, the VA will reactivate the health professional scholarship program. Funding is requested to support 1- and 2-year awards to nursing and physical therapy students to assist them in becoming a part of VA's medical system, a system in which we should all share great pride.

The VA medical system is available to all veterans, but we should, by law and by basic human instinct, concentrate our efforts on providing care first for service-connected veterans and those least able to pay for their health needs.

This means that some veterans who earn over $25,000 per year, and whose illnesses are completely unrelated to military service, may be required to use their own resources for obtaining health care in the private sector. However, in locations where resources and space are available, our health care system will furnish care to these veterans also.

You have my word that no veteran, no matter what his financial status, will be turned away from the VA facility in an emergency or a dire circumstance.

DEPARTMENT OF MEMORIAL AFFAIRS

The Department of Memorial Affairs provides services which continue even after death. The National Cemetery system, which we have been operating since 1973, is a very personal monument to the contribution of America's veterans. It is the final resting place for our country's defenders.

We are requesting $47.7 million for the Department of Memorial Affairs, an increase of $3 million over the fiscal year 1987 level. Total interments are estimated to increase 2.8 percent, to 56,000. Resources for the activation of a new national cemetery in Florida are provided. Funding is also provided, or included in our construction budget, for gravesite development of the Northern California National Cemetery.

MEDICAL CONSTRUCTION PROGRAM

Mr. Chairman, as the largest medical system in the free world, VA also oversees the largest medical construction program in the country. Our need to keep pace with modern medical practice is being met by a construction program designed to improve the quality, the safety, and the cost efficiency of facilities provided for the care of veterans.

It is for that reason that our request for 1988 construction funds of $525 million is 7.5 percent more than this year's construction budget. Major construction funds are proposed for 15 sites, including the bed replacement project at Dayton, Ohio, and the patient and nursing home care buildings project at North Chicago, Ill. The budget request also includes funds for clinical addition projects at Huntington, W.Va., and Jackson, Miss.

Mr. Chairman, I believe that our budget request reflects a necessary concern for fiscal restraint while enhancing our commitment to meeting the needs of our veterans. My staff and I will be pleased to answer any questions regarding the various programs which assist homeless veterans, and we will also be pleased to respond to your questions regarding our budget request and any of its other facets.

Thank you.

Senator PROXMIRE. Thank you very much, sir. We will be delighted to have any statements by other members of the panel.

[The statements follow:]

STATEMENT OF THOMAS K. TURNAGE, ADMINISTRATOR OF VETERANS AFFAIRS

Mr. Chairman and Members of the Committee, I appreciate this opportunity to appear before you today to present the Veterans Administration (VA) FY 1988 request of $27.6 billion in new budget authority to fund medical, compensation, and other programs for the nation's 27.7 million veterans, eligible members of their families, and survivors of deceased veterans.

Included in this amount is an appropriation request for $27 billion, a net of $81.3 million related to proposed legislation and $529 million in permanent authorizations and offsetting receipts. The VA's FY 1988 request represents an increase of approximately $548 million from funds currently requested in FY 1987. Budget outlays for FY 1988 are estimated at $27 billion. Average employment (FTEE) is expected to decrease by 3,126 from the 1987 current estimate to a level of 218,005.

At the outset, I would like to assure those of you who have expressed concern that insufficient resources are being requested for FY 1987 and FY 1988 that this budget will enable the Veterans Administration to meet its goals and objectives. Quality medical care for America's disabled and needy veterans is one of this administration's highest priorities.

The budget being requested for FY 1988 provides ample resources to furnish no-cost care to all service-disabled veterans who request it, as well as to former prisoners of war and veterans exposed to toxic substances and radiation. No-cost care would also be provided to veterans of wars prior to World War II and those receiving VA pensions. Among other veterans, funding would be provided for no-cost care for all earning less than $25,325 per year (for a veteran with one dependent; $20,260 for a single veteran). Funding would not be provided for the care of those whose annual income exceeds these levels. This administration believes that as a rule when veterans' illnesses are completely unrelated to their military service and they are financially able to provide for their own health care, they should do so. However, in locations where resources and space remain available, the VA will continue to furnish care to non-service disabled veterans with incomes above these levels. This practice will allow the VA to concentrate its efforts on service-disabled veterans and those least able to finance the cost of their own health care. It carries out the provisions of the Veterans Health Care Amendments of 1986, which established the current set of eligibility criteria for veterans' health care.

Consistent with this patient care policy, the 1988 request contains a rescission proposal which would eliminate funding that would otherwise be used during the last five months of FY 1987 for hospital, outpatient, VA nursing and community nursing services paid for by the VA for the care of higher income, non-service disabled veterans.

I will now summarize the VA's FY 1988 request, highlighting the budget issues for each of the major accounts.

Compensation

The 1988 budget requests $10.4 billion to provide compensation payments to 2.2 million veterans and 323,000 survivors. The 1988 funding request reflects the full year impact of the 1.5 percent compensation rate increase provided to all recipients on December 1, 1986. In 1987, a supplemental of $80.2 million is required to fully fund this rate increase.

Legislation is being proposed to index compensation benefits to the annual change in the Consumer Price Index. Enactment of this proposal would guarantee that all compensation recipients are provided a full and timely cost-of-living adjustment. It is currently estimated that the first such "automatic" cost-of-living adjustment, effective December 1, 1987, will be 3.5 percent and cost approximately $301 million.

Pensions

The 1988 budget submission includes an appropriation request of $3.8 billion. This amount is needed to provide payments to 1.2 million eligible recipients. The 1988 caseload estimate is 69,000 below the 1987 estimate. The caseload reduction reflects the recent trends in this program. Although it is anticipated that the number of veterans age 65 and older is expected to double during this decade, improvements in retirement benefits as well as other income sources will result in the continued decline in pension caseload.

The 1988 budget request includes the full year impact of the 1.3 percent cost-of-living increase provided to Improved Law recipients in December 1986, as well as an estimated 3.5 percent cost-of-living adjustment which would be effective in December 1987. The cost-of-living adjustments to eligible pension recipients, by law, are based upon the actual change in the Consumer Price Index.

Burial Benefits and Miscellaneous Assistance

In 1988, an appropriation of $141.7 million is requested to support operations in the Burial Benefits and Miscellaneous Assistance appropriation. The $13 million increase in 1988 is primarily due to an aging veteran population.

In addition, legislation is proposed making the plot allowance eligibility consistent with that for the burial allowance. Under this proposal, the plot allowance would continue to be paid for burial of veterans who were on either the compensation or pension rolls and for certain indigent wartime veterans whose burials would otherwise be at State expense. It is estimated that this proposal would reduce 1988 funding requirements by $31.3 million.

Legislation is also proposed authorizing the funding of the veterans mortgage life insurance program in the Veterans Insurance and Indemnities appropriation rather than the Burial Benefits and Miscellaneous Assistance appropriation. The funding of the Veterans Mortgage Life Insurance program is more appropriate under the Veterans Insurance and Indemnities appropriation which funds other insurance programs. This proposal would result in no overall change in appropriated funding.

Readjustment Benefits

An appropriation of $625.7 million is requested to operate this program in 1988. This funding level is $115.4 million below the 1987 appropriation level. The reduction in the appropriation request is primarily the result of a declining caseload as more Vietnam-era veterans either exhaust their education benefits or reach their 10 year delimiting date. Although the training workload is estimated to decline, this appropriation request will provide education benefits to nearly 183,000 Vietnam-era veterans, over 43,000 dependents, and vocational training to 24,500 veterans. The 1988 request also includes $20.4 million

to fund the basic benefit costs to veterans training under the All-Volunteer Force Educational Assistance program (New GI Bill). The appropriated funds for this program, in addition to the transfer of over $121 million in supplemental and reservist benefits from the Department of Defense and Department of Transportation, will fund the training of 19,400 veterans and almost 124,000 reservists.

Legislation will be proposed establishing the All-Volunteer Force Educational Assistance program as a permanent recruitment program for the Department of Defense. In this regard, it is proposed that the Department of Defense budget for all costs associated with this program. Under this proposal, the $20.4 million in basic benefits, included in the Readjustment Benefits appropriation request, would be appropriated to the Department of Defense. These basic benefit funds would be transferred to the Veterans Administration along with the supplemental and reservist benefit payments. It is important to note that the VA would continue to administer all benefits associated with this program.

Loan Guaranty

An appropriation of $389.8 million is required in 1988 to support operations in the Loan Guaranty Revolving fund. This appropriation request, which is based upon continuance of the 1 percent funding fee, would fund nearly $2.7 billion in obligations estimated for 1988. It is estimated that approximately 340,000 loans totaling $26.7 billion will be closed in 1988.

In addition, the 1988 budget proposes several initiatives to improve the management and operation of all government credit programs. Specifically, in the loan guaranty revolving fund, the VA would begin liquidating $900 million of its loan portfolio currently valued at $1.1 billion. The budget request anticipates that in 1988, $300 million of portfolio loans as well as $668.4 million in vendee loans would be sold without recourse.

The FY 1988 budget request includes several legislative proposals. None of the proposals will alter the program's primary goal which is to provide affordable housing to veterans with no down payment. The primary purpose of these proposals is to make the program solvent thereby eliminating the need for future appropriations and to improve credit management.

First, it is proposed that the 1 percent funding fee, which is scheduled to expire on September 30, 1987, be increased to 2.5 percent on June 1, 1987. The increase in the funding fee is necessary to obviate the need for an appropriation. Given the expected foreclosure rates, we believe that a 2.5 percent fee is necessary to keep the program solvent over time. The cost of this fee can be paid during the length of the loan and, if financed, would increase the veteran's average monthly payment by less than $10.

Legislation is also being proposed to have a lender/borrower negotiated GI interest rate. This means that future interest rates would be established by the lender and veteran as is done in other Federal programs and the private sector. This Administration has long believed that the Government should not regulate mortgage interest rates when the private market can do so more efficiently.

Two legislative proposals extend initiatives included in the Deficit Reduction Act of 1984. First, the VA proposes to continue the methodology used currently in determining whether or not to acquire a VA guaranteed property in foreclosure. These standards require that the cost of holding a property be considered in determining whether or not VA should acquire a property. By making this decision on a cost basis, VA can continue to manage the Government's resources devoted to the fund efficiently. Second, the VA proposes to increase the number of properties sold for cash. Existing legislation requires that at least 60 percent, but no more than 75 percent of acquired properties be sold with vendee financing. The legislative proposal, if enacted, would limit the vendee financing of property sales to between 40 percent and 60 percent.

General Operating Expenses

The budget request for General Operating Expenses is $816.1 million and 17,751 average employment for the operations of the Department of Veterans Benefits, the Department of Memorial Affairs, and the various staff functions of our Central Office. The 1988 funding request reflects the full year impact of the 1987 costs related to a 3 percent pay raise for Federal personnel, effective January 4, 1987. In 1987, GOE is able to absorb its pay requirements within existing resource levels.

However, a supplemental appropriation of $9.2 million is being requested to finance the increased 1987 costs related to the new Federal retirement program established by Public Law 99-335, Federal Employees' Retirement System Act of 1986.

The Department of Veterans Benefits (DVB) is requesting $551.3 million and 12,619 FTEE in 1988 which is an increase of $33.4 million in budget authority and a decrease of 296 FTEE from 1987. The budget proposes additional funding to continue DVB's comprehensive modernization program which will improve the delivery of services to veterans and their dependents. The 1988 budget includes $34.4 million for the modernization of the benefits delivery system. Projected savings as a result of this investment will enable costs to be recovered by 1994, three years after implementation is completed. This submission also requests $8.9 million to convert to a new files storage system. It is estimated that this project will have a $40 million savings potential to the Government over a 20 year life cycle. At this time, it is anticipated that the St. Paul and Philadelphia insurance operations will be consolidated. Such a consolidation will show annual savings of $1.7 million when it is completed in FY 1989.

The Department of Memorial Affairs is requesting $47.7 million and 1,187 FTEE for the management of the national cemetery system for eligible veterans, active duty military personnel and their dependents. This is $3 million above and 2 FTEE below the 1987 level. It is expected that total interments will increase by 2.8 percent and headstone/marker applications processed will increase 2.7% over 1987 levels. Resources required for the activation in 1988 of the new national cemetery in Florida are also included in this budget.

In the General Administration activity, the 1988 request is $217.1 million and 3,945 FTEE which is an increase of $10.4 million and a decrease of 159 FTEE from the 1987 level. Initiatives are primarily in the data processing area and

include PAID Redesign System Internal Specification Study ($1.1 million), CALM modernization for the design study and additional disk capacity for VA's financial systems ($0.5 million), and LOG I Redesign for the analysis and design of the automated supply system ($2.2 million). All three of these initiatives will provide resource savings which will more than offset the investments.

A new staff office, the Office of Systems Planning, Policy and Acquisition Control, is being established under the direction of the Associate Deputy Administrator for Management. This new office will establish ADP policy and evaluate ADP planning and procurement throughout the VA.

Medical Care

The Veterans Administration is requesting just under $10 billion for the Medical Care appropriation in 1988, an increase of $414 million over the 1987 estimate with an average employment level of 190,330 FTEE. Supplementals of $74.7 million and $131.6 million are being requested in FY 1987 to finance increased costs related to a 3 percent pay raise for Federal personnel, effective January 4, 1987, and the new Federal retirement program established by Public Law 99-335, Federal Employees' Retirement System Act of 1986, respectively.

Through its 172 hospitals, 231 outpatient clinics, 120 nursing homes and 16 domiciliaries, the VA provides a nationwide medical care delivery system designed to meet the special needs of America's veteran population. On the average, VA patients are older, have lower incomes and are more often in need of more comprehensive care than their counterparts in the general patient population. In the VA, inpatient health care is linked with outpatient care and specialized care modalities to provide an integrated, comprehensive system of health care delivery for eligible veteran beneficiaries. The 1988 budget request provides funding for the medical care and treatment of 1.4 million inpatients and 20.4 million outpatient medical visits.

A number of program and management initiatives are included in the 1988 budget request. These initiatives are designed to ensure that appropriate resources are available in the Medical Care appropriation to provide quality treatment to service-connected veterans and non-service connected veterans who cannot afford to pay for their care.

In 1986, legislation changed eligibility procedures for veterans seeking health care. Under the new law ("The Veterans Health Care Amendments of 1986", Public Law 99-272), three categories of eligibility (A, B and C) were established:

-- Category A consists of service-disabled veterans, former prisoners of war, veterans exposure to certain toxic substances or radiation, veterans of wars prior to World War II, and those receiving VA

-- pensions, as well as those non-service disabled veterans with annual earnings of less than $18,234 (for a veteran with one dependent, $15,195 for a single veteran).

-- Category B consists of those non-service disabled veterans earning between $18,234 and $25,325 per year (for a veteran with one dependent, between $15,195 and $20,260 for a single veteran).

-- Category C consists of non-service disabled veterans with earnings above the Category B levels.

These income threshold amounts increase by $1,013 for each additional dependent. Within these categories, VA has an obligation to provide hospital care and may provide outpatient and nursing care to veterans in Category A. The VA may provide hospital, outpatient and nursing care, within existing available resources, to veterans in Categories B and C, providing that veterans in Category C agree to make a copayment.

Consistent with the new law, the 1988 budget provides funding for the care of those veterans for whom the VA has an obligation to provide medical care, those in Category A and, in addition, it also provides funding for the care of those veterans in Category B. The VA will continue to furnish care to non-service disabled veterans with incomes above the Category B levels in locations where resources remain available.

Included in the 1988 budget request is a proposal to rescind $75 million in 1987 budget authority and reduce 1987 employment by 1,400 FTEE. This proposal, which is consistent with the President's budget for 1988, would eliminate funding that would otherwise be used during the last five months of FY 1987 for hospital, outpatient, VA nursing and community nursing services paid for by the VA for the care of higher income, non-service disabled veterans.

Also included is a change in mission of the VAMC Walla Walla, Washington with the closure of all inpatient beds and the establishment of an outpatient clinic at Walla Walla to report to the Spokane VAMC. The mission change is being proposed for several reasons including a very low and declining volume of inpatient workload. Veterans in the vicinity of Walla Walla will continue to be served on an inpatient basis at the Spokane VAMC, and on an outpatient basis at the Walla Walla outpatient clinic.

The VA is also proposing a mission change for the Miles City, Montana VAMC which calls for closure of inpatient surgery beds, a reduction of 32 acute medicine beds, establishment of 10 alcohol treatment beds, and an increase in 32 nursing home care beds. The VA Medical Center will retain an outpatient surgery capability and will expand outpatient care activities at the Billings, Montana Outpatient Clinic. The net affect of these changes is to alter the character of the Miles City facility from predominantly acute care to predominantly extended care.

A mission change is also proposed for Big Spring, Texas which consists of shifting the emphasis on the types of services provided by this facility from primarily acute medical, surgical, and psychiatric care to primarily extended care. The proposed mission change would eliminate inpatient surgical capabilities and would establish limited outpatient surgical services. To complement the extended care mission, long-term psychiatry and nursing home care beds will be established.

The Veterans Administration's extended care programs encompass a broad spectrum of care. One of the areas where the needs of the aging veteran will have a dramatic impact over the next few years is in the demand for nursing home beds. One method of providing additional long-term care beds is to convert existing beds to nursing home care beds. In 1988, $12 million and 335 FTEE will be transferred from the hospital to the nursing home care activity for the conversion of 282 beds to nursing home care. A realignment of resources from hospital to nursing operations as well as new activations will add an additional 854

FTEE and $35.3 million to this amount for a total increase above the 1987 level of $47.3 million and 1,189 FTEE.

The 1988 budget provides for increases of $10.9 million and 1,981 FTEE for facility activations, including the activations for new nursing homes I just mentioned. Activated projects increase the quality of patient care through improved or expanded operational capabilities. Many projects include additional, or an expansion of, sophisticated specialized services and new high technology treatment modalities. These projects may involve construction of new space and include workload increases such as outpatient visits and expanded clinical support services.

Medical And Prosthetic Research

The 1988 request for Medical and Prosthetic Research is $198.8 million, an increase $6 million over 1987 after excluding the one-time transfer of $20 million from the Department of Defense. The 1988 employment request of 4,417 FTEE is 225 under the 1987 level, but 16 FTEE above the 1986 actual.

Supplementals of $1.9 million and $1 million are being requested in FY 1987 to finance increased costs related to a 3 percent pay raise for Federal personnel, effective January 4, 1987, and the new Federal retirement program established by Public Law 99-335, the Federal Employees' Retirement System Act of 1986, respectively.

Medical research will provide funding in heart disease, schizophrenia, spinal cord injury, diabetes, cancer, aging, alcoholism, and related problems of Vietnam-era veterans, former prisoners of war and female veterans including an epidemiology study of women Vietnam veterans as mandated by PL 99-272.

Rehabilitation research funding will provide significant emphasis in priority areas of prosthetics/amputations, spinal cord injury and sensory aids. Health services research will continue its efforts in management and service initiated research.

Medical Administration and Miscellaneous Operating Expenses (MAMOE)

The 1988 request for this program is $49.8 million and 595 FTEE, an increase of $7.6 million and 4 FTEE over 1987. Supplementals of $736,000 and $345,000 are being requested in FY 1987 to finance increased costs related to a 3 percent pay raise for Federal personnel, effective January 4, 1987, and the new Federal retirement program established by Public Law 99-335, the Federal Employees' Retirement System Act of 1986, respectively.

Because of recruitment difficulties in some areas and in some specialties, the Veterans Administration proposes to reactivate the Health Professional Scholarship Program. Funding is requested for $6 million to support 211 one-year awards and 84 two-year awards to nursing and physical therapy students. Funds are also requested to allow for the collection of morbidity/mortality data to be used in the development of standards required by the VA Health Care Amendments Act of 1985.

Grants For Construction of State Extended Care Facilities

As a part of VA's long-term care policy, budget authority of $42 million is requested for 1988 for grants to States for the construction or repair of State homes for the care of aging

veterans. These funds will allow VA to continue shifting the mix of VA-sponsored care towards cost-effective State nursing home alternatives. Currently, because of the increased funding, we are projecting that, in 1988, 3 to 5 States that have not previously participated in the State Home Program will receive grants. The increase will provide 371 additional nursing home beds and 450 domiciliary beds as well as 12 non-bed related renovation projects in seven States.

Construction

The 1988 request for the construction appropriations is $525.7 million, an increase of nearly $37 million or 7.5 percent over last year. Of this amount, $400.6 million is for major projects at medical centers, regional offices and national cemeteries. Major construction funds are proposed for fifteen sites, including the bed replacement and modernization project at Dayton, Ohio, and the environmental improvements, patient and nursing home care buildings project at North Chicago, Illinois. The budget request also includes funds for clinical addition projects at Huntington, West Virginia and Jackson, Mississippi. Funding is also included for gravesite development of the Northern California National Cemetery.

Design funding is being requested for a new VA medical center at Palm Beach as well as for replacement and modernization projects at the Pittsburgh VAMC and the Atlanta VAMC.

In minor construction, the 1988 request of $121 million represents an increase of $40 million or 50 percent over the FY 1987 funding level. Minor construction includes a General Administration limitation of $42.7 million, reflecting the realignment of the Facility Engineering, Planning, and Construction (FEPAC) office with the Office of Construction to create the new Office of Facilities.

An increase of $1.2 million in the limitation for the expenses of the Office of Facilities is being requested in FY 1987 to finance increased costs related to a 3 percent pay raise for Federal personnel, effective January 4, 1987, and the new Federal retirement program established by Public Law 99-335, Federal Employees' Retirement System Act of 1986.

An appropriation of $4.1 million in new budget authority is requested for the parking garage revolving fund in FY 1988 to fund the parking garage for the Huntington, West Virginia clinical addition project.

Closing

Mr. Chairman, in closing, I am committed to the accomplishment of the VA's mission to provide veterans the care, support and recognition they have earned in service to this Nation. Our budget request reflects both a commitment to meeting the needs of our veterans as well as a concern for fiscal restraint. I appreciate the continued support and guidance of this Committee. This concludes my introductory statement. My staff and I are available to discuss the details of this request and answer your questions and those of the Committee Members.

STATEMENT OF JOHN A. GRONVALL, M.D., CHIEF MEDICAL DIRECTOR, DEPARTMENT OF MEDICINE AND SURGERY

Mr. Chairman and Members of the Committee:

I am pleased to be with you today to review the 1988 budget request for the medical programs of the Veterans Administration. The VA along with other government agencies is operating in a time of budget constraints. Despite the overall austerity of the Federal budget, we have a medical request that allows the VA to continue providing quality health care to eligible veteran beneficiaries. The Medical Care request for 1988 is $9.97 billion and 190,330 jurisdictional average employment, an increase of $414 million above the requested 1987 level. We estimate this request will support approximately 1,449,000 patients treated and 20.4 million outpatient visits. Supplementals of $74.7 million and $131.6 million are being requested in FY 1987 to finance increased costs related to a 3 percent pay raise for Federal personnel, effective January 4, 1987, and the new Federal retirement program established by Public Law 99-335, Federal Employees' Retirement System Act of 1986, respectively.

The budget being requested for FY 1988 provides ample resources to furnish no-cost care to all service-disabled veterans who request it, as well as to former prisoners of war and veterans exposed to toxic substances and radiation. No-cost care would also be provided to veterans of wars prior to World War II and those receiving VA pensions. Among other veterans, funding would be provided for no-cost care for all earning less than $25,325 per year (for a veteran with one dependent; $20,260 for a single veteran). Funding would not be provided for the care of those whose annual income exceeds these levels. This administration believes that as a rule when veterans' illnesses are completely unrelated to their military service and they are financially able to provide for their own health care, they should do so. However, in locations where resources and space remain available, the VA will continue to furnish care to non-service disabled veterans with incomes above these levels. This practice will allow the VA to concentrate its efforts on service-disabled veterans and those least able to finance the cost of their own health care. It carries out the provisions of the Veterans Health Care Amendments of 1986, which established the current set of eligibility criteria for veterans' health care.

Consistent with this budget strategy, the 1988 request contains a rescission proposal which would eliminate funding that would otherwise be used during the last five months of FY 1987 for hospital, outpatient, VA nursing and community nursing services paid for by the VA for the care of higher income, non-service disabled veterans.

The Veterans Administration's extended care programs encompass a broad spectrum of care. One of the areas where the needs of the aging veteran will have a dramatic impact over the next few years is in the demand for nursing home beds. One method of providing additional long-term care beds is to convert existing beds to nursing home care beds. In 1988, $12 million and 335 FTEE will be transferred from the hospital to the nursing home care activity for the conversion of 282 beds to nursing home care. A realignment of resources from hospital to nursing operations as well as new activations will add an additional 854 FTEE and $35.3 million to this amount for a total increase above the 1987 level of $47.3 million and 1,189 FTEE.

The 1988 budget provides for increases of $10.9 million and 1,981 FTEE for facility activations, including the activations for new nursing homes beds just mentioned. Activated projects increase the quality of patient care through improved or expanded operational capabilities. Many projects include additional, or an expansion of, sophisticated specialized services and new high technology treatment modalities. These projects may involve construction of new space and include workload increases such as outpatient visits and expanded clinical support services.

The 1988 request for Medical Administration and Miscellaneous Expenses (MAMOE) is $49.8 million and 595 FTEE, an increase of $7.6 million and 4 FTEE over 1987. Supplementals of $736,000 and $345,000 are being requested in FY 1987 to finance increased costs related to a 3 percent payraise for Federal personnel, effective January 4, 1987, and the new Federal retirement program established by Pubic Law 99-335, the Federal Employees' Retirement System Act of 1986, respectively. This level will also support data collection for the development of morbidity/mortality standards as required by PL 99-166 ($1,050,000) and the reactivation of the Health Professional Scholarship Program ($6,000,000 and 9 FTEE) to assist in the recruitment of nurses and physical therapists.

In 1988, 4,417 FTEE and $198.8 million are requested for Veterans Administration research programs. This level includes $3,950,000 for the continuing requirements of the Centers for Disease Control (CDC) Agent Orange Epidemiology study and represents an increase of $6 million over 1987 after excluding the one-time $20 million transfer from the Department of Defense. Supplementals of $1.9 million and $1 million are also being requested in FY 1987 to finance increased costs related to a 3 percent pay raise for Federal personnel, effective January 4, 1987, and the new Federal retirement program established by Public Law 99-335, the Federal Employees' Retirement System Act of 1986, respectively.

The $42,000,000 requested for the Grants for Construction of State Extended Care Facilities continues VA's commitment to provide additional nursing home facilities to veterans through a cost-effective alternative to VA-owned facilities. Because of the increased funding levels, 2 to 4 new states will begin participating in the State Home Program in 1988. The increase will provide 371 additional nursing home beds and 450 domiciliary beds as well as 12 non-bed related renovation projects in seven States.

We are also requesting $500,000 for Grants to the Republic of the Philippines in 1988. This grant supports the maintenance and upkeep of the Veterans Memorial Medical Center physical plant and facilities.

This concludes my opening statement Mr. Chairman. I will be pleased to answer any questions you or members of the Committee may have.

STATEMENT OF RAYMOND J. VOGEL, CHIEF BENEFITS DIRECTOR

Mr. Chairman and members of the subcommittee, I am pleased to present the Department of Veterans Benefits fiscal year 1988 appropriations request. The Department administers an integrated program of veterans benefits activities. The 1988 request for $15.9 billion represents fifty-nine percent of the VA's approximately $27 billion in appropriation requirements.

Funds for our Compensation, Pensions and Burial programs are the largest segment of the agency's budget. Our 1988 request, a total of $14.3 billion in appropriations, will provide an average monthly compensation benefit of $342 for more than 2.5 million veterans and survivors; assist over 1.2 million veterans and survivors with a monthly pension income of $259 and allow us to continue to maintain a comprehensive burial assistance program.

Legislation will be submitted to index future compensation and clothing allowance benefit increases to the annual change in the Consumer Price Index, and to change the eligibility for a burial plot allowance to the same criteria used for the basic ($300) burial allowance. The budget anticipates a cost-of-living increase of 3.5 percent, effective December 1, 1987, at a cost of $301 million. Changing the eligibility criteria for burial plot allowances will achieve $31.3 million in savings.

Our request for the Readjustment Benefits appropriation is $625.7 million and will provide educational assistance to 226,200 veterans and dependents; 24,500 veterans in vocational rehabilitation training, and 19,400 veterans and servicepersons training under the new G.I. Bill. In addition, $121 million will be transferred into this account from the Department of Defense and the Department of Transportation for benefit payments to 123,600 reservists and supplemental benefits to 16,200 servicepersons and 3,200 veterans, training under the all-volunteer force educational assistance programs. Another 1,200 veterans will be assisted in the purchase of specially adapted homes and automobiles.

Legislation will be submitted to transfer funding responsibility for the New GI Bill from the VA to the Department of Defense. This would reduce the 1988 appropriation request by $20.4 million.

The Loan Guaranty program will require $389.8 million to fund program operations and retire debt instruments issued under the Federal Assets Financing Trust (FAFT). This request, however, can be eliminated if the proposed legislation to increase funding fees from 1 percent to 2.5 percent, effective June 1, 1987, is enacted. If financed, the fee increase would add less than $10 to the average veteran's mortgage payment. The higher fee would not significantly reduce the number of veterans using the program. Even with the higher fee, over 323,000 veterans are expected to have $25.4 billion worth of loans guaranteed in 1988.

Funds have not been requested for the Veterans' Job Training program because of the significant drop in the unemployment rate of veterans and the duplication of existing and proposed job services provided by the VA and other government agencies.

To administer our benefit programs, we are requesting $551,282,000 and 12,619 FTEE in our General Operating Expenses appropriation for 1988, which is a decrease of 296 FTEE and an increase of $33.4 million over 1987. The additional $33.4 million primarily consists of increases in the modernization initiative ($10.7 million), a replacement file system at the Records Processing Center ($8.9 million), increased space charges ($7.8 million), funding for the new Federal Employee Retirement System ($16.5 million) and the annualization of the January, 1987 pay raise ($2.3 million). These increases are offset by net decreases totaling $12.8 million of which $8.2 million is associated with workload decreases, modernization savings and productivity improvements resulting in a 296 reduction in average employment.

Mr. Chairman, this concludes my statement. We will be glad to discuss our budget with the subcommittee.

STATEMENT OF ARTHUR S. HAMERSCHLAG, ACTING CHIEF MEMORIAL AFFAIRS DIRECTOR

I am pleased to present the Department of Memorial Affairs' Fiscal Year 1988 budget request. The Department of Memorial Affairs is responsible for three Veterans Administration missions: first, the operation and maintenance of the Veterans Administration National Cemetery System; second, the procurement and shipment to destination of headstones and markers furnished upon application for veterans' graves in both national and private cemeteries; and third, the grant program for aid to states in establishing, expanding or improving state veterans cemeteries.

The management structure within the Department of Memorial Affairs to supervise and control our assigned missions consists of a central office staff and three field area offices, presently located in Philadelphia, Atlanta, and Denver.

A total of 144 cemeterial installations are now included in the National Cemetery System, of which 112 are national cemeteries and 32 are miscellaneous burial plots and monument sites. The 112 national cemeteries include the West Virginia National Cemetery in Pruntytown, West Virginia which will open for interments in July 1987, the new regional cemetery at Ft. Mitchell, Alabama to open in spring 1987, and the Florida National Cemetery, located at the Withlacoochee State Forest, scheduled to open in early FY 1988.

Resources for staffing, supplies, materials and equipment are also included in 1988 for the activation of the new national cemetery in Florida.

Under the General Operating Expenses Appropriation, we are requesting $47,746,000 in budget authority for cemeterial operations and maintenance. Some 70% or $33,518,000 of this is for salaries and other related benefits, and will fund an average employment of 1,187. The other 30% or $14,398,000 will be used for equipment, supplies, fuel, contracts, communications, travel, printing and maintenance & repair projects.

During 1987 we expect to accomplish 56,000 interments and maintain 1,729,500 occupied gravesites. In addition, our workload includes the processing of 308,000 applications for headstones and markers.

The 1,187 average employment we plan to fund in 1988 includes 406 general schedule and 781 wage grade employees. The 1,187 employment request represents a net decrease of 2 FTEE from the FY 1987 level of 1,189. The FY 1988 level includes savings expected from productivity improvements and contracting out of selected cemeterial activities, partially offset by workload increases for interments and maintenance of gravesites, as well as staffing for the new national cemetery in Florida.

The 1988 request for construction funds totals $18,820,000. Included in construction major funds is $11,500,000 for gravesite development of the proposed new national cemetery in Northern California, $100,000 in Advance Planning Fund (APF) for Jefferson Barracks National Cemetery and $1,200,00 in design funds for projects at the Calverton, Ft. Snelling and proposed Northern California National Cemeteries. A total of $6,020,000 is included in construction minor funds to provide needed cemetery facility improvements.

FY 1988 will be our ninth year of operation of the State Cemetery Grant Program. No new budget authority is requested for 1988 because sufficient funds are available from a prior year's appropriation to meet expected requirements.

That briefly summarizes the 1988 budget request for the Department of Memorial Affairs. I will be glad to answer any questions you may have.

PROCUREMENT POLICY

Senator PROXMIRE. I want to thank Senator Grassley for opening the hearing.

Senator GRASSLEY. My first area of questioning deals with the area of the procurement policy of the Veterans Administration. I think that it is fair to say that the VA is one of our major procurement agencies, by which we mean the purchase of large volumes of supplies and things like that. I would like to get a better idea of the magnitude of this activity.

Can you tell me how much the Veterans Administration spends on an annual basis to procure things like services, supplies, and facilities?

General TURNAGE. I will ask for the assistance of the Controller in response to that question, Senator Grassley.

Mr. HOFFMAN. Let me ask Susan Livingstone.

Ms. LIVINGSTONE. Senator Grassley, it was approximately $3.2 billion for fiscal year 1986.

Senator GRASSLEY. My followup question is whether or not most of this procurement is undertaken in the health-related services, supplies and facilities of the Veterans Administration?

Ms. LIVINGSTONE. Whether it is logistically being done in terms of being decentralized to the hospitals?

Senator GRASSLEY. As you divide it up among the various functions of the VA.

Ms. LIVINGSTONE. Most of the $3.2 billion is for the Department of Medicine and Surgery for medical care procurement.

Senator GRASSLEY. I think we have established that, obviously, the VA is very much a major procurement agency of the federal government, and most of that procurement is health related.

Ms. LIVINGSTONE. Yes, sir.

GRACE COMMISSION AND COOPERS & LYBRAND

Senator GRASSLEY. I appreciate that information.

I now want to visit with you a little bit about a Grace Commission recommendation and a Coopers & Lybrand recommendation.

It is obviously very important, as we try to reduce the federal debt, that our federal programs are run as efficiently and cost effectively as possible. I know that this is a major concern of yours. The money saved through improvement and cost effectiveness of our operations can be used to provide services that the beneficiaries of our federal programs depend on.

In connection with that, I understand that in response to the recommendations of the Grace Commission, the Veterans Administration did contract with Coopers & Lybrand to undertake a study of the VA's procurement of medical supplies and nonperishable subsistence. Coopers & Lybrand made a number of recommendations that were published in February of last year. They apparently felt that considerable monies could be saved in this procurement area.

Now my question: What is VA's position on these recommendations?

General TURNAGE. I have had that specific indoctrination or briefing from Coopers & Lybrand outlining the results of that study, sir. We have gone down case by case on the recommendations made. In many of those instances, corrective action had already been taken. Subsequently, we have also taken further action. Virtually all of them, it seems to me, have merit, and I believe in some degree or another have been implemented.

I think an elaboration of that can be made further here.

Senator GRASSLEY. I think that maybe some examples would be appropriate for the immediate point, maybe one or two, but basically I would like to have a list in writing for the record.

General TURNAGE. We will do that for the record.

[The information follows:]

Status Report on Implementation of Coopers & Lybrand Report Recommendations

1. The quarterly summary report of the implementation actions to date for each of the 29 recommendations resulting from the Coopers and Lybrand study is provided herein.

RECOMMENDATION 1: VA should employ multiyear contracting on a selected basis.

Discussion: The VA generally endorses this recommendation.

Action Item: Request legal opinion from the Office of the General Counsel regarding the VA's authority to do so.

Status: Request forwarded to 02 on July 29, 1986. That opinion has not yet been received. The Office of Procurement and Supply learned from GSA in October of the existence of Comptroller General Decisions supporting multiyear contracting from nonappropriated funds, and forwarded that information to the staff attorney considering the issue. It was hoped that this additional information would have enabled a decision to have been reached at that time. However, the issue continues to be debated in that office.

RECOMMENDATION 2: VA should expand the number of pharmaceutical items procured through the National Contracts Program.

Status: Insulin has now been approved by the Executive Committee for Therapeutic Agents for inclusion in this program. Specification and solicitation package development is expected to be completed soon and contract awards are anticipated to be made on or about April 1, 1987. Through previously aggregated requirements for IV solutions for national contracting, VA saved $4.7 million in FY 1985 and an additional $4.7 million in FY 1986. The Marketing Center in Hines has been asked to develop specific criteria and milestones for the National Contracts Program initiative, including a formalized method for quantifying savings.

RECOMMENDATION 3: VA should convert appropriate items from Federal Supply Schedule (FSS) multiple award schedules to single award schedules.

Discussion: The VA generally endorses this recommendation and has been involved in such a conversion process for some time.

Status: There has been no change in status since the November 1986 report. Including the 8 items originally identified and published in the Federal Register of July 24, 1986, a total of approximately 63 items have now been identified for conversion from multiple award FSS availability to single award FSS availability. Purchase descriptions are currently being developed and assembled for those items and publication in the Federal Register and the CBD of our intent to convert these items to single award is anticipated in March. After the appropriate comment period, the solicitation documents will be developed and issued in time for award to be accomplished for the next contract period which begins October 1, 1987.

RECOMMENDATION 4: VA should reduce dependency on FSS multiple award contracts for pharmaceuticals and increase use of the National Contracts Program.

Discussion: As originally reported, this recommendation closely parallels Recommendation 2 and has been combined for implementation purposes in accordance with your earlier concurrence.

RECOMMENDATION 5: VA should expand the number of new medical supply and pharmaceutical items bought through the VA/DoD Shared Procurement Program.

Discussion: The program is in place and continues to expand the number of contracts and savings resulting from combined procurement. During the past

5 years, this joint venture has produced a combined Federal cost containment of over $90 million through joint usage of 462 contracts. There is currently a plan to include the procurement of medical equipment in this program.

Status: Medical equipment item selection is being accomplished in the following phases:

(a) Phase I consists of those items currently being centrally procured by DoD and VA on term or annual contracts. Lists of existing contracts are being exchanged for review and analysis. The target for completion of the review and selection of items is February 1987. Discussion of this process is scheduled during VA/DoD Shared Procurement Committee meeting to be held March 4 and 5.

(b) Phase II consists of those items previously identified for initial consideration under this initiative. The Blood Cell Counter and the Electro-surgical Unit have been selected for procurement. The target date for requirements to be provided to the appropriate contracting activity was March 1, 1987. The Office of Procurement and Supply conducted a survey to determine requirements for these items in the VA and received no response. Requirements development is also an agenda item for the March 4 and 5 meeting of the VA/DoD Shared Procurement Committee. We believe that procurement methodology will have to be reviewed to make the program more viable.

RECOMMENDATION 6: Each VAMC should solicit and award annual indefinite quantity requirements contracts with local vendors and distributors.

Discussion: While the VA generally endorses this recommendation, the extent to which it can be successful is largely dependent upon the extent to which the characteristics and volume of those items now being purchased locally can be determined. No consolidated data base currently exists for other than pharmaceuticals.

Status: In November it was reported that implementation strategy had been developed which tasked the membership of the Acquisition Improvements Implementation Task Force with discussing ideas and/or programs already implemented at local field stations and to provide status reports to the chairman by December 12. User members (Radiology, Pharmacy, Medical Service and Laboratory Service representatives) were to identify commodities currently procured locally on a repetitive basis, and discuss procurement methods with the Supply representative. The goal was to commit each medical center to at least one contract for an annual requirement by January 14. It was further anticipated that two medical districts would have been identified for strengthening efforts for consolidation of unposted/local supply procurement in March. However, the ITF has since reevaluated this initiative in an effort to improve implementation strategy. It is now believed that to continue the previous path would probably only result in nominal benefits to the Agency. The ITF feels that a more aggressive program must be developed at the headquarters level in order to provide the intended national advantage of such a strategy. As an initial action, a DM&S Circular is being developed prescribing the solicitation of annual requirements through the use of indefinite delivery contracts. In addition, LOG 1 reports are being closely reviewed to identify which of these reports will be of assistance to field facilities in identifying supplies which would be suitable for this method of contracting.

RECOMMENDATION 7: VAMCs should consolidate requirements and purchase as a buying group, using the indefinite quantity requirements contracts where two or more VAMCs are located in close geographic proximity.

Discussion: The VA generally endorses this recommendation. A consolidated procurement program has been in effect for some time. The VA is currently working with GSA to eliminate difficulties associated with the Competition in Contracting Act (CICA) when exceeding Maximum Order Limitation (MOL) on FSS Contracts. Currently CICA recognizes multiple award Federal Supply Schedule

contracts as competitive procurements. However, when the MOL of a contract is exceeded, the acquisition is no longer considered an FSS procurement and offers must be solicited from all interested parties and cannot be restricted to those suppliers currently holding contracts under the FSS program. Procedurally, that means that when two or more medical centers can agree to consolidate their requirements and order the resulting larger quantity from one contractor at lower prices, there is no assurance that the item agreed upon will be the item actually provided through the competitive bid process. This factor is a tremendous deterrent to consolidated procurement efforts by VA medical centers.

Status: GSA has concluded that the FSS solicitation provisions cannot legally be altered to include procurements in excess of the MOL. We continue all other consolidated procurement efforts, however, and the Agency realized savings in excess of $1.2 million during Fiscal Year 1986. With 96 percent of all Medical Districts reporting, the consolidated procurement report for the first quarter, FY 87, now reflects a cost avoidance of $521,102 in procurement costs with an additional savings of $20,913 in related administrative costs. This represents 201 percent of similar savings reported during the same quarter last year.

RECOMMENDATION 8: VA should work toward reducing its dependency on FSS.

Discussion: The VA does not endorse this recommendation. We believe that the FSS can be an effective procurement vehicle; however, our FSS negotiating process should be improved to provide for or result in a more favorable pricing structure for schedule users.

Status: There has been no change in status since the November 1986 report. The Office of Procurement and Supply awarded a contract to American Management Systems (AMS) to perform an analysis of the VA's FSS contracting process and to recommend improvements as appropriate. AMS has provided two general categories of recommendations, (1) those which would improve the quality of vendor submissions and (2) that which would automate the FSS procurement process. The VA has implemented or is in the process of implementing four of the six total recommendations. One of the two recommendations has been rejected by the VA and AMS alike as being impractical. That recommendation was that offers be evaluated in order of completeness as an incentive for vendors to submit error-free offers, rather than evaluating in order of estimated dollar sales. This is impracticable because such an approach will not ensure that those contracts most often used for the acquisition of medical supplies are awarded in a timely manner. The final recommendation was that the VA automate its FSS contracting process. We are in the early stages of either identifying existing software or developing programs to accommodate the FSS procurement process at this time.

RECOMMENDATION 9: VA should employ preaward, indefinite quantity requirements contracts in each VAMC local area.

Status: There has been no change in status since the November 1986 report. This recommendation is virtually identical to Recommendation No. 6 except that it is made in the context of reducing dependence on FSS. This recommendation has been transferred from the Acquisition Improvements Implementation Task Force (ITF) to the ITF on Recommendations Requiring Further Consideration.

RECOMMENDATION 10: VA should change the current order of preference in the VA Acquisition Regulations (VAAR) to permit use of local procurements based on indefinite quantity requirements when total purchase costs are lower than those through FSS.

Discussion: The VA generally endorses this recommendation, and believes compliance has been accomplished by a recent amendment to the VAAR providing authority to each purchasing activity to use local sources for items identical to items offered on FSS when a lower delivered price can be obtained. We

have, however, prescribed that the Marketing Center must be notified in order that such pricing information can be used to the Government's advantage in future negotiations.

Status: Implemented June 27, 1986.

RECOMMENDATION 11: All purchasing responsibilities within VAMCs should be centralized in the Supply Service organization.

Status: There has been no change in status since the November 1986 report, and this recommendation is considered implemented. The Office of Procurement and Supply is currently finalizing its development of the Acquisition Certification Program in accordance with the requirements of Executive Order 12352. Included in this program are requirements for specified levels of procurement training which must be successfully completed by any employee who is delegated contracting authority. The Agency procurement work force is required to be certified by October 1, 1989. It is anticipated that any individual exercising contracting authority after that time will have been thoroughly trained to do so.

RECOMMENDATION 12: VA should strengthen the Marketing Center's ability to monitor and report current item prices.

Status: Pricing information is essential if the VA is to ensure that we are receiving the lowest prices practicable. The Office of Procurement and Supply is currently recruiting for a price analyst to manage this program at the Marketing Center. That announcement closed on December 23 with the selection process continuing at this time. Additionally, we continue to identify that pricing information which will be useful to the Marketing Center in their contract negotiations and determining how best to relay that information to the Center. We had also assigned two medical center Supply Officers with the task of making some original contacts with local buying groups to determine if such groups will entertain memberships solely for the purpose of gathering price information. To date the outcome has been disappointing. The Office of Procurement and Supply has also drafted a DM&S Circular which will instruct medical center supply personnel in the processes for monitoring pricing structures and forwarding their findings to the Marketing Center. That draft will be circulated for concurrences of appropriate officials during the third quarter. In addition, strategy sessions were conducted by the ITF at the VA Marketing Center during the week of February 17. The results of these meetings are being formalized at this time and will be available for the next report.

RECOMMENDATION 13: The VA should designate a single senior Supply Officer in each VA region and assign him/her the responsibility for monitoring market prices.

Status: As previously agreed, this recommendation has been combined with Recommendation No. 12 for implementation purposes.

RECOMMENDATION 14: VA should authorize each regional Supply Officer to officially apply for membership in a major group purchasing organization in the region to collect price information.

Status: As previously agreed, this recommendation has been combined with Recommendation No. 12 for implementation purposes.

RECOMMENDATION 15: VAMCs should be given authority to procure through group purchasing organizations when items are available at more economical prices.

Status: There is no change since the November 1986 report. The General Counsel has determined that, under certain circumstances, the implementation of this recommendation is not contrary to law or regulation governing the Federal procurement process. Instructions regarding this issue will be included in a DM&S Circular which will be developed after the Standardization

Implementation Task Force has identified an initial group of items suitable for initiating the standardization effort. We would expect that process to have been completed and the circular drafted during the third quarter of the fiscal year.

RECOMMENDATION 16: VA should examine the use of two-tier contracting, involving: (1) price negotiations with medical supply and pharmaceutical manufacturers, and (2) commitments from hospital staffs to purchase from those manufacturers.

Status: This recommendation has been discontinued.

RECOMMENDATION 17: The VA should plan, implement and supervise a national program to standardize the medical supplies and pharmaceutical items used in VAMCs.

Status: The Implementation Task Force for Standardization has identified an initial list of approximately 85 items for which standardization potential is believed to exist. This listing, and pertinent data regarding each has been provided to the VA Marketing Center and to the DM&S advisors to the ITF for further analysis to ensure that standardization efforts should continue for these specific items. Additionally, the ITF for Standardization will be drafting the DM&S Circular outlining the standardization program and providing guidance on its implementation.

RECOMMENDATION 18: VA should modernize its Supply Automation System.

Status: There has been no change in status since the November 1986 report. The Office of Management and Budget has provided $2.229 million in FY 1988 for this initiative. The Maxima study of this system has been completed and has identified the major functional areas of our supply system which are to be addressed in the redesign effort. OIS&T is currently developing a statement of work for a contract task order for the evaluation of the redesign options. While there has not been a formal meeting of this ITF, there is continuing dialogue concerning strategies for this enormous project. Supply automation is critical to VA's standardization and inventory improvement efforts.

RECOMMENDATION 19: VA should centralize its control of the transportation function.

Status: There has been no change in status since the November 1986 report. Recruitment action for the position of Traffic Manager, GS 12/13, has been accomplished. Mr. William Bardwell, Traffic Manager at the VA Supply Depot in Somerville, New Jersey, was been selected at the GS 12 level and reported for duty on January 18, 1987. Initial resource requirements are being considered, i.e., traffic management software, routing data availability, clerical assistance, etc. Selected solicitations for depot stock are being issued with provisions which will allow a determination of the most advantageous shipping terms for the Government prior to award. Significant work is being accomplished at the Somerville VA Supply Depot in the area of scheduling inbound and outbound shipments from certain geographical areas so that they coincide, thereby reducing transportation costs.

RECOMMENDATION 20: VA should reinstate the position of Manager of Transportation.

Status: As previous

RECOMMENDATION 21: VA should manage the inbound transportation function of its depot system.

Status: As previously agreed, this recommendation is being combined with Recommendation 19 for implementation purposes.

RECOMMENDATION 22: VA should use "voluntary competitive bid tenders" in selected traffic areas in its management of the outbound transportation function of the depot system.

Status: As previously agreed, this recommendation is being combined with Recommendation 19 for implementation purposes.

RECOMMENDATION 23: VA should institute a surcharge of 3.5 percent of the value of all supplies purchased by other Government agencies.

Status: The Administrator approved the implementation of such a surcharge on October 16, 1986. With the more than 1,650 other Government agency ordering activities requisitioning approximately $22 million in medical supplies and subsistence annually, the projected income is approximately $770,000 each year. Written notifications were forwarded to our other Government agency customers early this month. The surcharge will be implemented April 1, 1987.

RECOMMENDATION 24: VA should establish a policy of measuring storage capacity in cubic measurement.

Status: This policy revision has been accomplished and is reflected in the MEOs developed for depot operations. Actual implementation awaits completion of A-76 studies of this function.

RECOMMENDATION 25: VA should maintain the current once a month depot delivery schedule to the VAMCs.

Status: Implemented.

RECOMMENDATION 26: The VA should maintain its present item inspection function.

Status: Implemented.

RECOMMENDATION 27: The VA should reduce depot inventories on an annual basis. The first year goal should be a reduction to 60 days inventory on hand and the second year goal should be 50 days inventory.

Status: Inventory at the end of December was $58 million representing approximately 62.7 days stock on hand, with a cancellation rate of 4.2 percent. Very close monthly monitoring will continue to assure that service to the users does not deteriorate. Although requisitioning factors in the Economic Order Quantity system have been modified, the scale of inventory reductions required to achieve the end level is not possible without the major redesign of the LOG 1 system. This is because it is not possible to further refine existing data utilizing our present batch processing system.

RECOMMENDATION 28: VA should add to the number of products currently managed within the depot system.

Status: There are currently 1,552 line items in the depot system. It is the plan of the Office of Procurement and Supply to place an additional 400 items into the depot system by the end of the current fiscal year. Action has now been initiated for over 100 items thus far.

RECOMMENDATION 29: VA should lower the unit price savings criteria (15 percent) adding new items to the depot.

Status: Implemented on September 18, 1986 based upon a sliding scale ranging from a minimum of 6 percent for items having annual sales exceeding $4 million to 15 percent for items having less than $15 thousand in sales.

3. The Implementation Steering Committee will continue to meet monthly and provide to you status reports of progress made toward implementation of the recommendations presented by Coopers and Lybrand. The next report detailing current activities on each individual recommendation contained in the Coopers and Lybrand study will be forwarded to you in May in accordance with our agreed upon quarterly schedule.

Senator GRASSLEY. Could you give me three major moves that have been made as a result of Coopers & Lybrand?

Ms. LIVINGSTONE. Yes, Senator. My name is Susan Livingstone, and I am Associate Deputy Administrator for Logistics, and I have oversight over the procurement program.

Essentially, Coopers & Lybrand made 29 recommendations for improvements in the VA procurement system. We wholeheartedly endorse all of those recommendations and have completed or have implementation action underway on each and every one of them, including task forces assigned to them that are reporting to the Chief of Staff.

Of the 29, 8 have been completed. One of the recommendations that Coopers & Lybrand made was to institute a 3.5-percent surcharge on the cost of services that we provide for other government agencies. That will be implemented effective April 1 and should generate about $770,000 for the VA.

In addition, Coopers & Lybrand recommended that we centralize our transportation function, and that was done. We hired a transportation manager, and we will be centralizing that function in our central office here in Washington, DC.

The most important recommendation, I think, for the Veterans Administration, however, in terms of cost avoidance, is in the area of standardization. Coopers & Lybrand pointed out in their study that Humana, in their standardization program, was able to effect approximately $57 million in savings in the first 3 years of that program.

We, too, believe that there is very significant cost avoidance potential in the standardization area. We have a task force that has been working on that, and they have initially identified 89 items for the first test of standardization within our system. We estimate the cost savings from just 13 of those items, once standardized, can reach $10 million.

So it would indicate that there is very significant cost avoidance potential in this area, and we are very enthusiastic, both in the Department of Medicine and Surgery and on the procurement side, with respect to standardization.

PROCUREMENT LEGISLATION

Senator GRASSLEY. Mr. Chairman, let me ask one more question. Let me also say that I would like to be involved in a couple of rounds of questioning, as opposed to just one round of questioning; is that permissible?

Senator PROXMIRE. That is fine.

Senator GRASSLEY. The last question would be a follow-on, but it would be more directed to you as Director, and that is in regard to Senator Murkowski's bill. He is, as you know, the ranking minority member of the Veterans Affair Committee, and he has introduced this bill, S. 631, which would require the VA to undertake certain procurement reforms along the lines of those recommended by the Coopers & Lybrand study.

Maybe you haven't had a chance to analyze that bill completely, since it was only recently introduced, but I would appreciate any comment you could give me at this time on what sort of general observations you might have of the legislation.

General TURNAGE. You are correct, sir, in the assumption that, because of the time constraint, we haven't had a complete analysis of the bill and some of the specifics involved in it.

I should suggest to you that from our perspective, we don't feel required to have to take initiatives that are cost saving or cost avoiding because we are doing everything we can, not only with in-house talent but with consultants and other people who are experts in specific fields, to give us the benefit of their recommendations so that we can incorporate them into our system. We have done that across the board.

We don't think that we are responding to these issues, rather we think that we are sort of at the cutting edge on these kinds of initiatives. We appreciate Senator Murkowski's interest in that and we look forward to following the specifics of his bill.

TWO-YEAR APPROPRIATION CYCLE

Senator GRASSLEY. Mr. Chairman, is it all right if I defer to you now?

Senator PROXMIRE. Sure; that is fine.

First, I ask unanimous consent that my opening statement be printed in full in the record at the beginning of the hearing.

General Turnage, Senator Domenici, who was chairman of the Budget Committee and did a fine job, in my judgment, and is also a member of this committee, suggested that we explore the possibility of passing a 2-year appropriations bill. Would that approach create any particular problem for the agency, or do you see a benefit in having to justify your budget only once every 2 years?

General TURNAGE. Mr. Chairman, we not only see that it would not be an impediment, nor create a problem for us, we would look forward to such an initiative. From the standpoint of planning and implementation, it would provide continuity, it would give other benefits to us that we think would be advantageous overall.

As you know, there are some facets of our budget process that provide for that now. In those instances, we find that it is wholly beneficial to us, and we would endorse that idea.

LOAN GUARANTY REVOLVING FUND

Senator PROXMIRE. Thank you, sir.

You are asking for a total of $389.8 million for the loan guaranty revolving fund in the coming fiscal year. On the other hand, the Congressional Budget Office does not think that you will need more than $190 million to continue at current levels. Why is your estimate so much higher than the CBO estimate?

General TURNAGE. Let me ask Mr. Vogel to assist in response to that, sir.

Mr. VOGEL. Mr. Chairman, the CBO number, as we understand it, may not take fully into account the federal assets financing trust obligation, which will be due and payable in August of fiscal year 1988. There is also a difference in the level of the unobligated balance of funds for the program, between the CBO estimate and our estimate.

PRODUCTIVITY

Senator PROXMIRE. General, GAO's past work has shown that an important element of a successful productivity program is to hold managers accountable for achieving specific productivity goals. One way of achieving this is through their merit pay performance plans or senior executive services contracts.

Does the Veterans Administration hold managers accountable for productivity improvements and, if so, how is that done?

General TURNAGE. We do hold them responsible for that, sir, and we have done it in a number of ways. Through management techniques and procedures that assess goals and objectives that have been established for them internally, the goals that we have in concert with OMB, based on automation and technology improvements that are applied to our system that we didn't have before, both from the standpoint of the medical and surgical side of the house, as well as the veterans benefits side of the house.

Automation has played a great role in that, Mr. Chairman. We continue to make improvements in it, consistent with the guidelines that have been established for us by the Appropriations Committee.

Senator PROXMIRE. Have you made major awards for improvements of that kind?

General TURNAGE. Yes, sir; on a continuous basis.

Senator PROXMIRE. Could you provide a list of those awards for the committee?

General TURNAGE. We can.

[The information follows:]

SES BONUSES

The following VA executives received bonuses in 1986 in recognition of their individual and organizational accomplishments. Each of the 98 was rated "outstanding" or "highly satisfactory" for contributing to accomplishment of the VA's goals and objectives by improving productivity, efficiency and/or quality of work or services.

Executive	Amount of Award
Robert Coy	$12,690
Frank Sato	$ 8,676
Kenneth Eaton	$ 7,755
David Cox	$ 7,050
Arthur Hamerschlag	$ 6,870
Audley Hendricks	$ 5,839
Robert Schultz	$ 5,287
Thomas Acklen	$ 5,152
Sherman Naidorf	$ 5,152
Renald Morani	$ 4,230
James Lawson	$ 3,974
Conrad Hoffman	$ 3,525
Robert Hincken	$ 3,435
Roger Bauer	$ 3,435
Neal Lawson	$ 3,435
Gary Cole	$ 3,312
John Vogel	$12,291
Lois High	$10,992
Stephen Lemons	$ 9,618
Kenneth McDonald	$ 8,244
Ralph Smith	$ 7,557
Donald Ramsey	$ 7,557
Paul Ising	$ 7,755
David Brigham	$ 7,014
Carlos Rainwater	$ 4,809
Raymond Avent	$ 4,636
Grady Horton	$ 4,230
Robert O'Toole	$ 4,230
Robert Gardner	$ 3,678
Thomas Lastowka	$ 4,122
Gordon Clowney	$ 4,122
Harold Gracey	$ 3,826
Robert Carey	$ 3,974
Jack McReynolds	$ 3,974
Robert Lindsey	$14,100
Donald Thompson	$13,395
Wayne Hawkins	$12,366
James Farsetta	$11,679
Albert Washko	$11,985
Barry Bell	$11,679
John Sheehan	$10,992
Albert Zamberlan	$10,575
Malcom Randall	$ 9,618
Terrence Johnson	$ 8,931

Executive	Amount of Award
Donald Ziegenhorn	$ 8,931
Jose Coronado	$ 8,931
John Fears	$ 8,931
Joseph Paris	$ 8,244
Alan Glaser	$ 8,244
James Must	$ 8,244
Richard Miller	$ 8,460
Alvis Carr	$ 8,244
James Caldwell	$ 8,244
Irvin Noll	$ 7,557
Gary Wilkinson	$ 6,870
Alan Harper	$ 5,884
David Van Hooser	$ 5,961
Donald Burnette	$ 5,496
Edward Seiler	$ 5,231
Joan Kershner	$ 4,809
Sidney Ford	$ 4,935
James Gregg	$ 4,809
Charles Yarbrough	$ 4,809
Charles Koerber	$ 4,636
Paul Stanford	$ 3,371
James Stephens	$ 3,435
Thomas Ayres	$ 3,435
Carl Stephenson	$ 3,525
Dan Kadrovach	$ 3,435
Gary De Gasta	$ 3,065
Andrew Montano	$ 3,435
John Lee	$ 3,525
Ray Williams	$ 3,435
Glenn Alred	$ 3,435
Kenneth Mulholland	$ 3,269
Barbara Small	$ 3,435
Alan Maurer	$ 3,188
Michael Harwell	$ 3,269
Clarence Nixon	$ 3,435
Donald Pabst	$ 3,435
Richard Droske	$ 3,435
Thomas Gigliotti	$ 3,435
Vincent Parrish	$ 3,435
Gregory Haag	$ 3,435
Fred Salas	$ 3,435
Thomas Trujilio	$ 3,269
Hugh Vickerstaff	$ 3,435
Michael Lawson	$ 3,312
Russell Struble	$ 3,435
James Goff	$ 3,435
James Warnock	$ 3,435
Frederick Malphurs	$ 3,312
Allen Furlan	$ 3,312
Larry Deters	$ 3,435
John Carson	$ 3,435
Jack Graham	$ 3,435
James Christian	$ 3,435
Nathan Geraths	$ 3,435

NON-SES PERFORMANCE AWARDS

The Veterans Administration performance appraisal policy for Performance Management and Recognition System (PMRS - formerly Merit Pay) is based on such factors as: improvements in efficiency, productivity, quality of work or service, reduction in paperwork, cost efficiency, and timeliness in providing services. Cash performance awards are given after the completion of each annual PMRS appraisal cycle. In fiscal year (FY) 1986 the Veterans Administration presented 1,997 PMRS performance cash awards to employees who did the most to make improvements in the areas mentioned above.

In Department of Veterans Benefits Regional Offices nearly all employees regardless of performance system have performance standards relating to productivity in their program areas. Their performance awards are based in part on attainment of these production standards.

Attorneys in the Board of Veterans Appeals also have production standards in their performance plans and their performance awards too are based on the attainment of those standards.

SUGGESTION AWARDS

The agency's suggestion program recognizes employees whose adopted ideas directly contribute to the efficiency or economy of the Government or directly increase effectiveness of Government operations. The Veterans Administration has an active employee suggestion program. In FY 1986, the VA received 7,045 suggestions from employees. Of that total 2,152 were adopted.

SPECIAL CONTRIBUTION AWARDS

The agency also grants special achievement awards for special one-time contributions. These are for achievements related to official employment which were beneficial to the Government. In FY 1986, the VA granted 10,569 awards totaling $3.4 million. These included:

Marjorie R. Quandt, Assistant Chief Medical Director for Planning, Evaluation and Systems Development, Department of Medicine and Surgery

Miss Quandt received an $8,000 special contribution award in part for her leadership in the development of resource allocation models based on DRG's (Diagnostic Related Group) and RUG's (Resource Utilization Group). These models address the need for measurable and substantial methods to assess efficiency and productivity.

Health Resources Management Staff, Department of Medicine and Surgery

This staff received a $10,000 group award for designing new analytical methods to help facilities understand their fiscal and workload strengths and weaknesses under the new productivity oriented resource allocation system and presenting the system to approximately 2,500 persons in a unique workshop/seminar approach. The new system as now understood and applied as a result of this training effort has decreased costs and increased productivity in two of the seven DM&S medical regions.

Jack J. Sharkey, Director, Office of Information Systems and Technology

Mr. Sharkey received a $4,000 special contribution award for streamlining his office's operations and greatly enhancing the productivity of the agency's vast ADP network. Through a major reorganization Mr. Sharkey was able to reduce staffing requirements by 113 FTEE and expenditures by $5.2 million annually while the Austin Data Processing Center, the recipient of most transferred functions, experienced a 13.8 percent increase in productivity.

Jerry G. McRae, currently Director, VA Regional Office, Portland, Oregon

Mr. McRae received a $3,000 special contribution award for accomplishments while he was Chief, Debt Management Staff, Department of Veterans Benefits. Mr. McRae was recognized for efforts which resulted in reducing the projected delinquent debt owed the VA from $2.31 billion for FY 88 to $1.1 billion. This was done in part by use of automation and centralization in collecting education loans. These and other initiatives led to productivity improvements that resulted in an estimated $10 million plus in collections of outstanding education loans in FY 87 with a reduction of FTE to 10. In FY 1985, $3 million was collected with an estimated 80 FTE.

Andrew W. Burge, VA Supply Depot, Hines, Illinois

Mr. Burge received a $1,000 special contribution award for his recommendation to convert to a new type of Laser Bar Code Reader for use in processing controlled drugs. Among other benefits, such as more accurate data entry, the new system has enabled operators to increase their productivity by eight line items per day. Mr. Burge was also instrumental in implementing a new automated Bin Location System. Receiving personnel can now establish locations for incoming shipments within a matter of seconds, thus saving valuable manhours for more productive tasks.

HONORARY AWARDS

The Veterans Administration has an active honorary awards program.

The Veterans Administration's top two honor awards are the Exceptional Service Award and the Meritorious Service Award. Granted on a highly selective basis, these awards recognize outstanding contributions to the agency, Federal Government, or the Nation through leadership, management ability, cost savings/avoidance, improvements in efficiency or services, or increased productivity. A total of sixteen of these awards were granted in 1986. These included:

C.L. Dollarhide, former Director, Education Service, Department of Veterans Benefits

Mr. Dollarhide's Exceptional Service Award was based in part on his leadership in introducing state-of-the-art personal computers and word processors to the Education Service. This, in combination with other innovative management approaches, allowed Mr. Dollarhide's staff to achieve maximum efficiency and productivity and, thus, keep abreast of the rapid-paced administrative needs stemming from the requirements of such legislation as the Veterans' Job Training Act and the new GI Bill.

Clyde C. Cook, former Director, Office of Procurement and Supply

Mr. Cook's Exceptional Service Award recognized a career that was characterized by effective and efficient management. Mr. Cook emphasized cost controls/avoidance as evidenced by the silver recovery program's realization of reimbursements to the VA Supply Fund totaling $29.7 million from FY 79 to FY 85. His emphasis on cost savings through increased centralized procurement led to a cost avoidance in FY 85 of $413 million. Early on, Mr. Cook recognized the need for a professional, effective and productive acquisition workforce. His establishment of a training program for the procurement workforce has contributed significantly to the achievement of those goals.

AWARDS SPONSORED BY OUTSIDE ORGANIZATIONS

In addition to the aforementioned awards which the VA grants on a regular basis, the agency consistently participates in award programs sponsored by other Federal agencies and outside organizations such as the Public Employees Roundtable. A number of these award programs recognize achievements leading to increased productivity and other efficiencies leading to more cost effective, timely, and efficient services to the public. Examples of VA nominees for or winners of these awards include:

The Pharmacy Service, VA Outpatient Clinic, Columbus, Ohio, is a recent nominee for the 1987 Public Service Excellence Awards sponsored by the Public Employees Roundtable. These awards honor public service organizations whose achievements exhibit the highest standards of dedication, excellence and accomplishment. The Pharmacy Service renovated their entire operation through remodeling, installing of a computer system, and reorganizing the procurement of drugs and supplies. The result has been improved patient services, smooth flow of workload and increased productivity.

R.J. Vogel, Chief Benefits Director, is one of the recipients of the U.S. Treasury Department's Awards for Distinction in Cash Management/Debt Collection. Under his leadership the agency has dramatically improved the collection and prevention of debts owed the VA. His efforts resulted in a reduction of projected debts by approximately $1.2 billion dollars while reducing agency operating costs for debt collection by $2 million from FY 1985 to FY 1986.

Senator PROXMIRE. Are productivity goals incorporated into SES contracts and merit pay plans?

General TURNAGE. Yes, sir; they are.

Senator PROXMIRE. I would like to call your attention to examples of Defense Department gain-sharing efforts. Sacramento Army Depot, which you may or may not be familiar with, had a pilot program involving a relatively small number of employees, but it was carefully selected to make it typical.

They say that combined, the test resulted in reported savings, shared equally between the government and employees. Productivity based on the number of units produced increased 17 percent for small purchase employees and 16 percent for maintenance employees.

The Sacramento Air Logistics Center tried the same kind of approach, and the resulting savings were shared 80/20 percent between the government and the employees respectively.

The unit experienced significant reductions in personnel turnover, overtime, backlogs, and the amount of work it had to contract out. They shared 80/20, with the government taking 80 percent and the employees taking 20 percent, but it was very successful. Do you have anything of that kind?

General TURNAGE. This is Mr. Mike Rudd of the Office of Personnel and Labor Relations.

Mr. RUDD. We haven't formalized the program, but last year the agency gave out $571,000 in SES bonuses to 98 different executives for the type of activity that you are talking about.

Senator PROXMIRE. What about a savings and sharing program, not just a bonus program; have you done that?

Mr. RUDD. We do not have a formal system like that, sir.

Senator PROXMIRE. You do not have?

Mr. RUDD. No, sir.

Senator PROXMIRE. Why not try that on a limited basis. You have a large agency, and if it doesn't work, you can abandon it. On the other hand, it has worked in this case, and it might be well worth trying.

General TURNAGE. There is one statistic that I think is germane, Mr. Chairman. The most recent Bureau of Labor Statistics report for fiscal year 1985 shows that overall VA productivity increased 1.6 percent over the previous year, compared to a 0.6-percent increase for the entire federal government.

We think that we are attuned to precisely what you are suggesting, and I will take your suggestion under advisement here for a specific test of what you suggested.

Senator PROXMIRE. I appreciate that. Frankly, it is good to see a 1.6-percent improvement, but 1.6 percent isn't really very much of an improvement. That is precisely what the overall economy happened to have last year, 1.6 percent. It is much bigger in nonservice areas, so perhaps that is in your favor, but we hope that we could even do better.

PRODUCTIVITY—EMPLOYMENT DECREASE

You indicated on page 21–23 of your justification that you will reduce average employment in your compensation, pension, and education programs from 3,623 currently to 3,413 in fiscal year 1988 because of declines in most of the workloads. You also state that the decrease in employment is due in part to productivity improvements.

How much of the 210-person decline is attributable to productivity improvements?

Mr. VOGEL. Mr. Chairman, I don't have that number in front of me. We obligate the program managers to build in a minimum of 1-percent productivity improvement, but what that equates to for the total number of FTE, the compensation, pension, and education programs at our field offices is not certain. I can break it down and provide it.

Senator PROXMIRE. For the record, I would appreciate it if you would provide precisely what the productivity improvement is. Do you have it?

Mr. VOGEL. I have it, sir, 60 FTE.

Senator PROXMIRE. That is about one-quarter of the saving, 60 out of 210?

Mr. VOGEL. Yes, sir.

PRODUCTIVITY—DEPARTMENT OF VETERANS BENEFITS

Senator PROXMIRE. What are your plans for expanding the productivity of your Department for Veterans Benefits over the next 3 years?

Mr. VOGEL. Senator Proxmire, we have now put into place an office automation system which will provide a lot of help in handling the clerical activities largely in support of the insurance, the compensation, the pension, the education, and the loan guaranty programs. That system will enable us to transmit information away from paper transmittal and by electronic means.

Because we are very sensitive to the demands placed on us to process loan guaranty work, the very first and most vigorous efforts in automation are being addressed in the loan guaranty processing systems.

Senator PROXMIRE. My time is about up.

Senator D'Amato.

TREATMENT OF VETERANS WITH AIDS

Senator D'AMATO. Thank you, Mr. Chairman.

I wonder if you could give us any information as to how many veterans you treated in VA facilities last year for AIDS?

Dr. GRONVALL. Senator D'Amato, to this present time, I believe we have treated in the VA something like 1,300 veterans who have a diagnosis of AIDS. At the present time, we have actively in treatment about 900 veterans with AIDS.

Senator D'AMATO. What is your projection as it relates to this particular disease in the veterans? For example, have you projected out how many you will have in treatment next year, what the demand will be?

Mr. Chairman, I think that this is something we had better come to grips with. The VA, like many other institutions, will probably be facing some tremendous cost increases in this area of treatment if the preliminary studies that we have looked at materialize.

I would like you to tell me what you have been doing to try to project what these costs will be, what were they in the past year, and what do you see them amounting to, and what kind of research, if any, are you conducting and intend to conduct?

Dr. GRONVALL. Yes, Senator, I would be pleased to respond to all of those points, because AIDS is rapidly increasing both in our population and in the nation, and poses a major health threat to the country. We have invested a great deal of time in dealing not only with our patients, but actively developing research and making plans for the future.

To summarize some of the questions that you asked, as I said, we are currently treating about 900 patients. Our estimate for 1987 is that by the end of 1987, we will have some 1,300 patients in treatment. As best as we can see, projecting into 1988, that will increase, unfortunately, to something like 1,900 patients.

Our experience has been that each of our AIDS patients lives about 2½ years. It is costing us about $38,000 per year for each of the patients that we are treating. That figure grows out of a couple of episodes of hospitalization plus virtually continuous outpatient care.

Taking that on an aggregate basis, that cost figure and the number of patients, our estimate for 1986, the year we just finished, was about $31.5 million. We believe this year, 1987, we will spend just under $50 million, and in 1988 that will increase to more than $70 million. So you are quite right in your comment built into your question that this is a growing problem, and the cost implications are serious ones.

I should add that we are a very important component of the research activities going on in the nation. For example, one of the most im-

portant studies underway is being done only in the Veterans Administration. There has been much publicity recently about AZT, the new drug that appears to alleviate some of the symptoms, at least, of AIDS and complications. We are conducting a clinical trial on veterans who have so-called AIDS-related complex. That is not full-blown AIDS.

AIDS RESEARCH

Senator D'AMATO. Are they just carrying the antibodies or are they beyond that stage?

Dr. GRONVALL. No; they are infected so they show the antibodies, and in addition they are beginning to have symptoms, but are not clinically ill. They have swelling of lymph nodes and a number of other symptoms, but don't have illnesses that yet need to be treated.

We are doing a controlled clinical trial, using AZT, the new drug, for veterans with AIDS-related complex, to investigate the question of whether that drug, even though it can't cure the disease once the disease is established, will prevent the establishment of the disease in a person who is infected but doesn't yet have active clinical disease.

It is a very important trial. As I said, the VA is the only organization conducting a trial. The drug is in extremely short supply. The commercial manufacturers of the drug are working hard to increase the supply and we are urgently conducting a trial to see if the drug should be given prior to the full development of the disease.

I could go on to other examples of research, but suffice it to say that that is a very high priority in our research as well as medical treatment programs.

Senator D'AMATO. Doctor, just on that one aspect, how long is it projected before you begin to get some kind of results on the effectiveness of the AZT?

Dr. GRONVALL. I am sorry that I cannot recollect that date, sir, but we would be pleased to give you a short summary of that trial for the record.

[The information follows:]

CLINICAL EVALUATION OF AZT

The VA clinic evaluation of AZT as a treatment for AIDS-related complex [ARC] began in January 1987. Assuming continued availability of AZT, 250 patients will be enrolled by July 1988 and initial results will be available in the spring of 1989.

AIDS WORKLOAD ESTIMATES

Senator D'AMATO. I take note of your projections that we had 900 veterans in treatment last year, that we will have 1,300 in the year 1987, a doubling in that period of time from 1986 to 1988, from 900 to 1,900. Would I be wrong by suggesting that possibly that figure of 1,900 could even be considerably higher?

Dr. GRONVALL. Yes, of course. As in any projection, it accumulates a series of judgments, some of which over time turn out to be wrong. That is our best judgment, and we have utilized all of the information developed not only in the VA, but in the Public Health Service and the private sector, to try to make that projection.

We have worked closely with the Department of Defense medical people because individuals on active duty military service who become ill often are discharged and then they add to the number of patients that we are treating.

We have tried to take all of that into account, and it is our best judgment, but it may turn out not to be accurate.

PROFILES OF AIDS PATIENTS

Senator D'AMATO. As it relates to the studies that you are conducting on the AIDS problem, in addition to medical research and clinical research, are you keeping track of where and how they came into contact with this disease? In other words, are surveys being conducted to give us a better understanding of this? Although there is much that has been said about the homosexual community being the highest risk group, then intravenous drug users, it behooves us to continue that kind of detailed study that has really not been done to date.

Dr. GRONVALL. We have done very detailed documentation of all of our case experience. A very small number of our veteran patients contracted the disease in a way that we have not been able to document, but we have extensive documentation. Our experience differs from that of the remainder of the health sector. Proportionately more veteran patients with AIDS contracted the disease through drug abuse than homosexual contact.

The reason for that, I think, primarily is that the military service does not look favorably on inducting people who are homosexuals, of course. So in veteran populations, the proportion of homosexuality is lower than in the general population, and that is reflected in a smaller incidence of homosexual AIDS patients in our veteran population.

Senator D'AMATO. I wonder if the chairman would think it appropriate, but could you prepare for this committee an analysis of some of those studies about the method of their becoming infected, and the manner of distribution, and those trends that you might develop in those surveys? I think that it would be important for the committee.

Dr. GRONVALL. Absolutely, Senator, I would be pleased to do so. I view the work in the VA on AIDS as being one of our most important contributions. We are a national resource now, and a very important part of both care and research on this medical disaster. I would be pleased to present such a report to you.

[The information follows:]

RISK FACTOR ANALYSIS OF VA AIDS PATIENTS AS OF FEBRUARY 28, 1987[1]

	Number	Percent	(2)	(3)	(2)
Homosexual or bisexual	770	44.3	(51)	54	(62)
History of IV drug abuse	448	25.7	(32)	31	(39)
Both homosexual and IV drug abuse	114	6.6		8	
History of transfusion(s)	48	2.75		3	
History of heterosexual exposure to high-risk person	48	2.75		3	
Unknown or unreported	312	17.9			
Total	1,740	100			

[1]From the VA reporting system RCS 10-0116.
[2]Percentage of patients in that risk category counting those who are in another category as well.
[3]Percentages using only those patients whose risk category is known (1,428 patients) in the denominator.

Senator D'AMATO. My time is up, and I thank the chairman.

I want to thank you, Doctor, for your response.

In addition, Mr. Chairman, I would like to request that my prepared statement be included in the hearing record.

Senator PROXMIRE. Without objection, so ordered.

[The statement follows:]

STATEMENT OF SENATOR D'AMATO

Mr. Chairman, I commend you for addressing the important role that the Veterans Administration plays in serving the veterans of our country. I have always been a strong supporter of our veterans, and I am pleased to be discussing their future today.

The President's fiscal year 1988 budget requests $27.7 billion in budget authority and $27.2 billion in outlays for veterans programs. This is an increase in funds over previous years, but it is less than what would be required if current law and policies continued for fiscal year 1988.

Specifically, the President's proposal eliminates VA-provided health services for veterans with annual income over about $20,000 if they are not entitled to such services based on a service-connected disability or other status. Although I am concerned about reducing veterans benefits, I also want to make certain that all efforts are made to insure that veterans with service-connected disabilities receive their fair share in benefits. I certainly support actions which assist those veterans who have become disabled through service to this country.

In addition, the President's proposal makes the new GI education bill a permanent recruitment and retention program. The cost, but not the administration, of the program would be transferred to the Department of Defense. Also, burial plot benefits for some veterans not receiving veterans compensation or pension benefits would be eliminated under the administration's proposal. Compensation benefits would increase automatically and cost-of-living increases would be tied to the Consumer Price Index.

The proposal also extends and increases the fees on housing loan guarantees from 1 to 2.5 percent. As the ranking member of the Housing Subcommittee of the Banking and Housing Committee, as well as a member of the HUD and Independent Agencies Subcommittee of the Appropriations Committee, I have strong reservations about such an increase. An increase in fee is a direct tax on homeowners. I object to this increase, particularly as it pertains to those individuals who have given their lives to serve for this nation.

The administration has also requested a rescission of $75 million of fiscal year 1987 appropriations for veterans health care services. I strongly object to this proposed rescission. This proposed rescission is a direct attack on the intent of this committee, as well as on the intent of Congress.

As Congress addresses broad national issues and faces the difficulty of the federal deficit, the veterans of this nation must continue to receive top priority.

Thank you, Mr. Chairman.

Senator PROXMIRE. Thank you, Senator D'Amato.

Senator Mikulski.

Senator MIKULSKI. Thank you very much, Mr. Chairman. I look forward to working with you on this subcommittee on these issues affecting veterans.

Today's hearing is very important to me because over 500,000 men and women who ably serve in the armed services are constituents of mine. It is my goal, as a member of this subcommittee, to join you in making sure the benefits we guaranteed to those who fought for our freedom are not weakened.

The medical care, the retirement benefits, the housing loan programs are not subsidies or public assistance. Instead, they are a democratic society's way of saying thank you to those who sacrificed so many things to defend our country.

CARE FOR THE AGING IN THE VA

Today my questions are going to focus on health and then, if I have time, move to housing, if the chairman lets me know the time.

First, a broad policy question in terms of the delivery of health care. So many of our World War II veterans are aging, and it calls upon us, I am sure, to evaluate our health care delivery mission from both acute care to care more oriented to a geriatric population.

My question specifically is, then, what is the long-term care policy of the Veterans Administration, what services do you intend to provide in the area of long-term care, and what resources do you anticipate needing? Will we convert some of our acute care facilities, for example, into long-term care beds. What thoughts have you given to this subject?

Dr. GRONVALL. Senator Mikulski, my answer is "Yes" to all of the things that you suggest, plus many other factors that are in our plans for dealing with the changing health care demands that come about as a result of aging.

We have studied the matter, I think, in great detail. Without trying to respond to everything that we are doing, I would say our projections show that over the coming two decades, relatively speaking, we will need fewer acute hospital beds than we now have, more extended care hospital beds, and more nursing home beds.

We are in the process of converting some of our acute hospital beds to both extended care and nursing home beds. We have adopted a strategy that will project increases in nursing home beds, both in the VA itself and in the community, beds that we use on a contract basis.

In the state home program, we have more than doubled our budget support to encourage states to play their role in this expansion of nursing home capability.

I just have one other comment. We have adopted many experimental, pilot, and other new initiative programs to assist veterans to get along at home, without needing to be either in a nursing home or extended care setting, hospital-based home care, adult day health care, a number of such programs.

We are actively engaged in research on aging and education of our staff, as well as other health professionals, to better prepare them to deal with the changing health needs of older veterans.

MISSION CHANGES

General TURNAGE. Senator Mikulski, may I make an additional comment about that?

Senator MIKULSKI. Please.

General TURNAGE. From the standpoint of the overall philosophy of the management of the system, first of all, my role—and I accept it with enthusiasm—is to seek the same requirements for the veterans nationally as we have for any one constituency or geographic area of the country.

One thing that you can contribute and assist us with, as well as this committee, as well as the Congress as a whole, as well as the veteran service organizations, is to understand that we are really dealing with a great deal of dynamism in this system, subject to constant change, because of technological changes in the medical system, as well as the aging process, as well as the emigration of people to the Sunbelt, where we find, for example, that we have some of the hospitals that are less utilized than others. Thus, these kinds of mission changes are required, and support for those kinds of initiatives is vital. We would seek your support for that.

HOME CARE ALTERNATIVES

Senator MIKULSKI. I like to think in concrete terms, and I think that that is important. Therefore, when you say, "Seek those changes," I would like to know what they are. Also, I think that it is very hard sometimes to duplicate a parallel system in veterans' delivery of health that is available in the private sector.

For example, the provision of home health care to a veteran who is coming from the hospital after a heart attack or a stroke, but who is able to return home. In most communities, the IVNA and the Visiting Nurses Association provide the home health care deliverers in many communities. Rather than having the veterans IVNA, perhaps we need to have contractual services. Is this what you are talking about?

Dr. GRONVALL. Yes; we have many such things underway. I could expand on our projections for the future.

Senator MIKULSKI. I think the chairman of the committee is interested because the expense of maintaining a long-term care bed in a nursing home, be it in the private sector or at a VA hospital, is an expensive item. We are talking about postcardiac. We are talking about stroke victims. We are talking about people with certain forms of dementia.

I think we would agree that there is a continuum of service and basic care that could be provided by families with some support, home health care. I am sure that what you are looking at is the appropriate care for veterans in the appropriate setting that meets the humanitarian needs, as well as fiscal responsibility.

Dr. GRONVALL. Absolutely, Senator. In fact, the Veterans Administration has an advantage over the private sector in that regard in that we, as a single integrated system, operate outpatient clinics, outreach programs, hospitals, nursing homes, extended-care centers, domiciliaries, as well as home-based programs, under single management. It is easier for us to develop a coordinated plan to assist a veteran to find the right level of treatment or support that is necessary. I believe that we are actually in the vanguard of such planning.

Senator MIKULSKI. You are doing that now?

Dr. GRONVALL. Yes.

GERIATRIC EVALUATIONS

Senator MIKULSKI. How do you do it? I like to think in pictures, rather than in broad macro terms. Tell me how it would work? You have geriatric evaluations?

Dr. GRONVALL. Yes. In our medical centers, for example, we have geriatric evaluation units, formal structures of multidiscipline teams. When a veteran patient needs to come into a nursing home, we conduct an intensive evaluation.

As a result, we have had considerable success, that has been documented in the scientific literature, in shortening the time a veteran needs to be in a nursing home. We have achieved success in assisting veterans to get out of the nursing home and back into some home setting. We have worked with the care givers or support people, who assist the veteran at home.

I would be pleased to supply you with additional specific reports, publications from the literature that document that.

[The information follows:]

GERIATRIC EVALUATION UNITS

Geriatric evaluation units [GEU's] are specifically intended to enhance the effectiveness and efficiency of health care service delivery to older patients. Studies published in scientific literature indicate that such enhancement does occur and that by improving the health and functional status of individual patients, GEU's do facilitate measurable reductions in the utilization of hospital and nursing home care services. Attached are four articles that delineate the impact of GEU's on the management of the health care needs of geriatric patients.

[From Journal of Gerontology, 1982, Vol. 37, No. 5, 513–521]

The Role of Geriatric Assessment Units in Caring for the Elderly: An Analytic Review[1]

Laurence Z. Rubenstein, MD, MPH,[2,3] Lois Rhee, MPH,[2] and Robert L. Kane, MD[3,4]

Specialized geriatric assessment units (GAUs) have been established across North America in response to the growing recognition of the many unmet needs of the frail elderly and the conviction that GAUs can have major beneficial impacts. Although their structures and objectives vary considerably, GAUs are generally designed to comprehensively assess elderly patients' medical and psychosocial problems, to determine optimal placement, and often to provide therapy and rehabilitation. We offer a framework for examining structural and outcome variables for GAUs. Our analytic review of reported descriptive studies and the relatively few outcome studies indicates that GAUs can provide important positive impacts on health care for the elderly, including more thorough diagnoses, improved levels of physical and psychological functioning, and better placement decisions.

Key Words: Multidisciplinary teams, Rehabilitation, Health care effectiveness, Nursing home placement, Long-term care

AGING is characterized by the convergence of multiple dysfunctions. Elderly persons are more likely to suffer from chronic disease and the resultant disability. These same individuals also are increasingly vulnerable to social, psychological, and economic stresses. One result of these personal and environmental insults is a greater use of health care services, especially those designed for long-term care. Some of the statistics are familiar by now. The 11% of the population over the age of 65 uses more than 30% of the health care dollars. They account for 36% of hospital days and almost all (87%) of the nursing home days (Federal Council on Aging, 1981).

Concerns, motivated in part by compassion and largely by cost, have turned attention to the prevalent problem of inappropriate use of services, especially those in institutional settings (Kane & Kane, 1978). The United States General Accounting Office report (1979) concluded that at least 10 to 20% of patients in skilled nursing facilities (SNFs) and 20 to 40% of patients in intermediate level care facilities (ICFs) receive unnecessarily high levels of care. Such inappropriate use is undesirable on several counts: (a) it is wasteful of scarce resources; (b) it may create further disability by leading to premature labeling of a patient as irremediably ill; (c) institutional environments in themselves are hazardous for the aged (Steel et al., 1981); (d) premature or erroneous dispositions from hospitals may produce recidivism or at least unnecessary nursing home utilization. In addition to inappropriate use of services, frail elderly adults often receive incomplete diagnostic evaluations, excessive numbers of prescribed drugs, and inadequate rehabilitative services (Butler, 1975). Careful assessment of frail elderly patients can often reveal remediable conditions and help to better match services with needs. The assessment process can lead to discovery of new important treatable problems, simplification of overly complex drug regimens, arrangement for needed rehabilitation, and development of a more supportive physical and social living environment to enhance patient functioning.

These concerns and realizations have prompted increased attention to the hospital/community interface. One response has been the development of special units designed to assess the full spectrum of geriatric needs, to effect a comprehensive plan of care, and often to provide at least initial steps toward rehabilitation, when appropriate. These units, often termed geriatric assessment units (GAUs) or geriatric evaluation units (GEUs), are an outgrowth of the special-purpose wards established in Great Britain to address the special needs of the geriatric patient (Brocklehurst, 1975; Kane & Kane, 1976).

These specialized GAUs are now an established part of the health care systems of several countries, with specific numbers of allocated beds. The number of GAU beds per 1,000 elderly people varies among these countries (Brocklehurst, 1975; Kane & Kane, 1976). In England there are approximately .6 assessment

[1] This research was supported by the Health Services Research and Development Service of the Veterans Administration. Requests for reprints should be addressed to Dr. Laurence Z. Rubenstein, GRECC-11E, Sepulveda VA Medical Center, 16111 Plummer Street, Sepulveda, CA 91343.

[2] Geriatric Evaluation Unit, GRECC, Sepulveda VA Medical Center, Sepulveda, CA.
[3] Department of Medicine, UCLA School of Medicine, Los Angeles, CA.
[4] Rand Corporation, Los Angeles, CA.

beds per 1,000 elderly adults, whereas Sweden has about 1.6. Norway and Israel are currently expanding their geriatric services to include assessment units. Norway plans to have between .75 and 1.5 per 1,000 elderly adults; Israel plans to have .3. No country has yet performed a well-controlled study to evaluate the effectiveness of these units. In fact, many British geriatricians would consider such a trial to be unethical, so convinced are they of the clear value of geriatric units.

Specific aspects of GAUs differ not only from one country to another but also regionally within countries. The age that constitutes the dividing line between internal medicine and geriatrics, for instance, may differ, or different regions may not agree on whether elderly patients with acute illness should be admitted to medical or geriatric wards. But two concepts are firmly held throughout countries that utilize GAUs, regardless of regional differences: (a) elderly patients need a special, more broadly based and interdisciplinary approach to their care than do younger patients; and (b) no patient should be admitted to a long-term-care facility without a careful medical and psychosocial assessment (Brocklehurst, 1975).

In the United States, where health care has been less formally structured and financed and where geriatrics has been slower to become established, such units have appeared in a variety of forms. They have been based on acute hospital wards, in outpatient settings, and in long-term-care institutions. Some units provide comprehensive diagnostic assessment without providing therapy, others provide only minimal assessment but extensive rehabilitation, and still others combine extensive assessment with therapy and rehabilitation. This paper summarizes the reported North American experience with GAUs.

Framework for Analysis

A GAU can exist with any of a variety of structures, be located in different types of settings, address varying target populations, and achieve various goals. Table 1 offers a structure by which to describe the roles and purposes of any given GAU. Such a perspective is necessary if we are to appreciate fully the lessons to be gleaned from the GAU experience. The outline provided in this table is intended as a framework. The elements within each heading are not necessarily mutually exclusive; certainly the elements in one area will determine decisions in another. For example, the purpose of a GAU will be closely related to decisions about where such a unit is located, criteria for patient selection, and the source of patients. Whereas most units are used as elective adjuncts to care, either as community-based services for outpatients or for patients completing a course of acute hospitalization, some have been employed as mandatory steps in determining the appropriateness of nursing home admission. Thus, criteria for admission to the unit can be expressed in either inclusionary or exclusionary terms. One might aim to accept all persons over a given age with an intended disposition with some explicit exceptions, or one might target more specifically a particular subgroup for whom GAU services are felt to be especially appropriate. Such a distinction is critical in assessing the impact of various units.

Similarly, operational factors will vary with the expected role of the unit and its place within the health care system. One problem delaying more aggressive development of GAUs in acute hospitals has been the impact of utilization review. Because no provision is made for functions such as assessment of complex problems of elderly patients, the GAU tends to occupy an ambivalent position between traditional acute care (which has often been completed by the time of GAU referral) and rehabilitation (which implies more active physical therapy than may be necessary). In the absence of a policy for GAUs, local negotiations have had to suffice.

It has become almost a watch word of GAUs to talk about team care, but less has been said about the size and interdisciplinary composition of the core team. Teams may be very expensive and potentially inefficient. The solution appears to lie in using as small a core team as possible and mobilizing a variety of adjunctive specialists when appropriate.

A critical component of any assessment unit is its capacity to follow its patients after initial disposition. Information on postdischarge status represents critical feedback of the effectiveness of placement decisions, as well as an opportunity for subsequent adjustments of care plans as new problems in functioning are encountered.

Table 1. Organizational and Operational Variants of the Geriatric Assessment Unit

Purpose	**Location**
Assessment/evaluation	Acute hospital
Placement	Chronic hospital/long-term care facility
Rehabilitation	Outpatient clinic
Acute care	Free-standing unit
Education	
Research	
Source of patients	**Criteria for patients**
Community (direct application or referral)	Age
Acute hospital	Mental functioning
Long-term care facility (reassessment)	Stability of condition
	Mandatory versus elective
Organization	**Approach to assessment**
Composition of basic care team	Multidimensional
Participating support services (e.g., dentistry, psychology, occupational therapy, physical therapy, optometry)	Presumed capability versus actual performance
Size of unit	**Available patient resources**
Patient or staff ratio	Fixed test batteries versus clinical judgments
Expected length of stay	Record keeping format
Source of payment	
Follow-up capability	

Few would question the need for functionally based multidimensional assessment. Domains to be covered include functional activity (activities of daily living), psychological functioning (both cognitive and affective), physiological measures, and social activity, as well as a careful review of medical diagnoses and treatment plans. One may want additional routine data on special organs (e.g., vision and hearing). Less clear, however, is how to gather this needed information. Although measures are available for all domains (Kane & Kane, 1981), certain fundamental issues must be confronted. Is it preferable to measure the capacity or the actual performance of a client, and, if the latter, under what circumstances (e.g., before or after rehabilitation, in a hospital or home setting)? To what extent are available patient resources (e.g., caregivers, living environment, supportive services) considered in the final calculation of needs? It is important to give as much attention to resources, actual and potential, as to functional deficits.

Finally, a few logistic issues need to be considered. There are sharp differences of opinion about the desirability of using formal tests and fixed batteries of tests as opposed to relying on professional judgment. In part, this decision will depend on the amount of expertise available, but it should also depend on the degree of consistency sought. Especially when placement is at sake, equity is critical. Similarly, the more structured the record-keeping system, the more likely are good data for more consistent decision making.

Objectives and Structures of Existing GAUs

The summary of literature on GAUs in North America shown in Table 2 reveals considerable variation among them in areas of objectives, structures, and perceived benefits. (Many other such units exist but are not yet described in the published literature.) The predominant model is the inpatient unit in an acute general hospital. GAUs have also been established in extended care and long-term care (LTC) facility settings. Successful outpatient geriatric assessment programs have been developed. Geriatric units within teaching hospitals exhibit further variations in structure and theme by adding research and educational programs (Cheah et al., 1979; Checkryn & Roos, 1979; Rubenstein et al., 1981).

Some geriatric units in acute hospitals focus on comprehensive assessment and short-term treatment of acutely ill patients without providing extensive rehabilitative therapy (Cheah et al., 1979; Sloane, 1980). Other inpatient units provide less extensive assessment but do provide prolonged rehabilitation (Checkryn & Roos, 1979; Reed & Gessner, 1979), whereas some others provide both comprehensive assessment and extensive rehabilitation (Balaban, 1980; Rubenstein et al., 1981). Still other units are basically chronic care facilities but with important assessment and rehabilitation components (Ingman et al., 1979; Schuman et al., 1978). Outpatient units generally provide assessment and placement services without rehabilitation (Hughes & Lindsey, 1980; Williams et al., 1973).

In general those units supplying only assessment have relatively short lengths of stay (LOS), those providing rehabilitation have longer LOS, and, as expected, those providing chronic care have the longest LOS. The size of units is also

Table 2. Geriatric Assessment Units: Structural Components

Reference	Type of facility	Location (affiliations)	Unit size and mean length of stay (LOS)	Objectives
Williams et al., 1973	Outpatient evaluation and placement unit at a chronic care institution	Monroe Community Hospital, Rochester, NY (University of Rochester)	Outpatient program	Provide comprehensive medical, psychosocial evaluation, improve placement
Bayne & Caygill, 1977	Outpatient assessment and placement service (APS)	Hamilton District Health Council, Ontario, Canada (McMaster University)	Outpatient program	Improve assessment of chronically ill, provide services to meet identified needs, educate health personnel
Kleh, 1977	Evaluation unit on the top floor of a downtown hotel	Gerontological Treatment Center, Washington DC (George Washington University)	16 beds; LOS unspecified	Provide short-term comprehensive workup and management, improve placement
Poliquin & Straker, 1977	Psychogeriatric unit in a VA medical center	Brentwood VA, Los Angeles, CA (UCLA)	20 beds; LOS = 75 days	Provide comprehensive medical, psychiatric, and social evaluation, outpatient followup
Schuman et al., 1978	Chronic care hospital adopting an innovative approach	St. Mary's Hospital, Ontario, Canada (Queen's University)	210 beds; LOS = 310 days	Improve patient care, educate medical housestaff, provide outpatient followup
Cheah et al., 1979	Geriatric evaluation unit (GEU) in a VA medical center	VA Medical Center, Little Rock, AK	10 beds; LOS unspecified	Provide short-term comprehensive medical and psychiatric assessment
Checkryn & Roos, 1979	Extended care unit of a general teaching hospital	St. Boniface General Hospital, Manitoba, Canada (University of Manitoba)	160 beds; LOS unspecified	Improve outcomes and patient care
Dastoor et al., 1979	Inpatient geriatric unit in a general hospital	Douglas Hospital, Montreal, Canada (McGill University)	Size and LOS unspecified	Provide comprehensive patient evaluation workup, develop diagnostic screening procedures
Ingman et al., 1979	Long-term care facility adopting an innovative geriatric approach	Geriatric Care Center, Columbia, MO (University of Missouri)	300 beds; LOS unspecified	Provide comprehensive geriatric care, including evaluation, rehabilitation, outpatient followup, and day hospital
Reed & Gessner, 1979	Extended care facility emphasizing rehabilitation	John L. Deaton Medical Center, Baltimore, MD (University of Maryland)	220 beds; LOS = 59 days (for patients discharged)	Provide rehabilitation
Balahan, 1980	Special care and treatment unit (SCAT) at an acute general hospital	Middlesex General Hospital, New Brunswick, NJ	Size unspecified; LOS = 15 days	Provide care for chronically ill patients after stabilization of acute problems; assess, improve, and maintain functional status
Ford et al., 1980	Geropsychiatric ward in a university hospital	Neuropsychiatric Institute, UCLA Medical Center, Los Angeles, CA (UCLA)	20 beds; LOS = 44.5 days	Provide intensive inpatient geropsychiatric evaluation and treatment; provide medical education, facilitate clinical research
Hughes & Lindsey, 1980	Outpatient geriatric evaluation service of a city health department	Baltimore City Health Department, Baltimore, MD (University of Maryland)	Outpatient program	Provide geriatric screening and evaluation of physical and mental status; encourage use of community services instead of institutionalization
Reifler & Eisdorfer, 1980	Geriatric and family services clinic of a university hospital	Department of Psychiatry and Behavioral Sciences, Seattle, WA (University of Washington)	Outpatient program	Provide psychiatric, medical, social, nursing, and architectural evaluations, offer family counselling and support
Sloane, 1980	Special ward in an acute, general hospital	Jackson Memorial Hospital, Miami, FL	30 beds; LOS = 20 days	Improve placement, provide short-term comprehensive assessment
Rubenstein et al., 1981	Geriatric evaluation unit (GEU) in a VA medical center	VA Medical Center, Sepulveda, CA	15 beds; LOS = 67 days	Provide a comprehensive team assessment; improve functional status; optimize placement; provide outpatient followup

Table 3. Geriatric Assessment Units: Evidence for Effectiveness

Reference	Intervention studied	Research objectives	Outcome measures	Research design
Williams et al., 1973	Outpatient evaluation program	Demonstrate improved appropriateness of placement	Placement locations; appropriateness of placement (expert judgment)	Descriptive, time-series, with a preintervention comparison group
Bayne & Caygill, 1977	Assessment and placement service (APS)	Demonstrate improved placement; document diagnostic assessment	Placement locations; diagnoses of medical and psychiatric problems	Descriptive (no control group)
Kleh, 1977	Program of patient assessment	Demonstrate improved patient placement	Placement locations	Descriptive (no control group)
Poliquin & Straker, 1977	Inpatient psychogeriatric unit providing evaluation, rehabilitation, and after-care	Demonstrate improved placement locations and diagnostic assessment; improve treatment outcomes	Placement locations; diagnoses of psychiatric and medical disorders from chart reviews	Descriptive, prospective, using prepost measures (no control group)
Schuman et al., 1978	Program for assessment and rehabilitation in a chronic care facility	Demonstrate reduction in LOS, decrease acute hospital admissions	Placement locations, readmission rates	Descriptive, with pre- and posttest comparisons and parallel group comparisons
Checkryn & Roos, 1979	Rehabilitation progra.	Correlate care outcomes with quality of care process	Functional status (Katz ADL), mental status, life satisfaction, LOS	Retrospective chart review using explicit criteria, descriptive (no control group)
Dastoor et al., 1979	Psychogeriatric assessment program	Test and validate psychologic scales; predict survival	Social and psychologic functioning, using battery of psychologic tests (e.g., WAIS)	Descriptive (no control group)
Reed & Gessner, 1979	Rehabilitation program	Demonstrate improved placement	Placement locations	Descriptive, time-series (no control group)
Balaban, 1980	Special care and treatment unit (SCAT); interdisciplinary assessment and rehabilitation	Demonstrate improved patient health and functioning, demonstrate cost effectiveness	Placement locations; rehospitalization rates, measures of patients' functional status and well-being, use and costs of services	Longitudinal, prospective, partially randomized controlled trial with serial assessments
Cheah & Beard, 1980	Psychiatric evaluation on a geriatric unit	Demonstrate improved diagnostic assessment	Diagnoses of psychiatric problems	Descriptive chart review with pre- and postcomparisons (no control group)
Ford et al., 1980	Interdisciplinary assessment of geropsychiatric patients	Demonstrate improved psychiatric profile	Psychiatric profile (IPSCE scale)	Descriptive, with pre- and postmeasures (no control group)
Hughes & Lindsey, 1980	Geriatric evaluation service (GES)	Define factors affecting use of community services by GES patients	Utilization of community services	Descriptive (no control group)
Reifler & Eisdorfer, 1980	Outpatient psychogeriatric unit providing comprehensive evaluation	Demonstrate improved diagnostic accuracy	Measures of mental and physical functioning; follow-up questionnaire	Descriptive (no control group)
Sloane, 1980	Special ward for evaluation and rehabilitation	Demonstrate improvement in placement; develop predictors for patients who benefit	Placement locations; functional and mental status scores at discharge (Katz ADL, Pfeiffer MSQ)	Descriptive, with pre- and postmeasures (no control group)
Rubenstein et al., 1981	Inpatient geriatric unit providing comprehensive evaluation, rehabilitation, and placement	Demonstrate improved functional status, reduced use of drugs, improved placement locations, and improved diagnostic accuracy	Placement locations, functional status scores (Katz ADL); analyses of medications and diagnoses	Descriptive, prospective, using pre- and postmeasures (no control group)

Sample size	Research findings
N = 322 patients	23% of patients able to remain home, 39% to board and care facilities, 38% to nursing homes or psychiatric hospitals; 84% of patients appropriately placed versus 50–60% previously.
N = 2005 outpatients	60% of patients discharged to long-term treatment of care facilities, 40% of private homes or board and care facilities; 2.8 diagnoses per referral documented
Unspecified	80% of patients recommended for return to community
N = 47 psychogeriatric patients	79% of patients discharged to board-and-care facilities, 21% to nursing homes; 66% of patients had depressive reactions and functional disorders, 72% had associated medical problems; 74% of patients achieved full or partial remission
N = 260 patients (98 geriatric, 79 rehabilitation, 83 control)	33% reduction in LOS (from 469 to 310 days); increase in patients discharged home (from 28% to 40%)
N = 107 patients	No significant correlation between recorded care processes and outcomes
N = 40 surviving patients at 3-year follow-up	Higher mortality in patients with organic diseases than those with functional disorders; correlation between pretest scores and survival
N = 401 patients	20% of patients discharged home or to lower level of care; 46% of patients died or went to acute hospitals; 34% of patients remained chronically ill
Experimental group (treated on SCAT), N = 85; control group (treated elsewhere), N = 110	Short-term, beneficial effects on emotional status and well-being; no significant difference in readmissions to hospital, functional status, or care costs between groups; subgroup analyses pending
N = 241 patients	181 out of 241 patients had new psychiatric diagnoses
N = 122 geropsychiatric patients	Improvement in IPSCE scores from admission to discharge in all diagnostic categories
N = 112 patients	Negative correlation between health status and use of services
N = 82 consecutive patients	32% of patients had reversible cognitive impairment, physical health improved in 38% and mental functioning in 24% of respondents; 71% were satisfied
N = 29 consecutive patients	Eight out of 29 patients had improved placement; small improvement in ADL; predictors for benefit on unit developed
N = 74 patients	Improved placement locations in 48% of patients, 67% of patients improved functional status; average of four new treatable diagnoses noted; mean number of prescribed drugs reduced by 32% and number of doses reduced by 43%

nary teams than do some small geriatric units in acute teaching hospitals (Ingman et al., 1979; Rubenstein et al., 1981). In summary, the type and complexity of staffing reflects both the nature of the geriatric program and its objectives but not necessarily its unit size.

Several of the geriatric units combine their therapeutic functions with education and research in geriatric medicine and gerontology, often through university affiliation and support. Prime examples are the geriatric units affiliated with Geriatric Research, Education, and Clinical Centers (GRECCs) and geriatric fellowship programs in several of the VA facilities (Cheah et al., 1979; Rubenstein et al., 1981). In addition to these educational missions and affiliations, some units possess other special features such as geriatric day hospitals (Schuman et al., 1978) and outpatient follow-up clinics (Ingman et al., 1979; Rubenstein et al., 1981; Schuman et al., 1978). One program offers a preadmission home visit assessment service (Ingman et al., 1979). Others provide inpatient geriatric consultation (Ford et al., 1980; Rubenstein et al., 1981).

Evidence of Impact of Existing GAUs

Table 3 summarizes available information on the demonstrated effectiveness of GAUs. Most of the reports from North American GAUs identified in this review strongly suggest that comprehensive geriatric assessment and rehabilitation lead to improved patient outcomes. However, only one project has attempted a true experimental design; unfortunately, even this effort yielded only quasiexperimental data (Balaban, 1980). Most of the other reports are only descriptive studies, or quasiexperimental studies with pre- and postcomparisons and cannot fully establish the effectiveness of the interventions. This section considers the data and impressions from the various studies intended to indicate the impacts of the various units.

The most widely used patient outcome measured in these studies is functional status. Improvement in functional status is obviously important; most studies that examined this variable demonstrated improvement during patient's stay on a given unit, although measurement scales differed. In a descriptive study design using pre- and posttests of Katz's activities of daily living (ADL) assessments, Rubenstein et al. (1981) showed functional improvement in two out of three of patients. Sloane et al. (1980) showed a similar, but smaller, improvement between ADLs on admission and 3 months after dis-

charge. Balaban (1980) also showed improved pre- and postfunctional status; however, the control group patients, who received usual hospital care, also improved. Faced with serious differences in the composition of the two groups, he was not able to demonstrate a measurable difference in amount of improvement between the experimental and control groups. This supports the hypothesis that the patients would have improved anyway in a normal hospital setting, although the sample size was too small to make this statement with much assurance. Two areas that did improve more in the experimental than in the control groups were those of emotional state and sense of well-being, measured at the 3-month posttest.

Several researchers studied the impact of geriatric units on placement location. Williams et al. (1973) developed an outpatient evaluation program for patients referred specifically for nursing home placement. They found that almost a quarter of these patients were able to remain home, usually with the help of community services. An independent review by a team of experts showed that 84% of patients had been "appropriately" placed after the program began, compared with only 50 to 60% prior to the establishment of the program. Rubenstein et al. (1981) showed improvement over the placement locations expected by the referring physician in almost one-half of the patients treated on an inpatient GAU. Schuman et al. (1978) noted a 35% increase in chronic hospital patients discharged home after institution of a new geriatric service. Dealing with a relatively independent population, Balaban (1980) observed no significant difference in the proportion of patients discharged to institutions from the special unit than from the group of control patients treated on the other inpatient wards.

Another major area of impact of GAUs is the improvement of diagnostic accuracy, usually indicated by diagnosis of new, treatable problems. One chart review documented an average of almost four new treatable conditions diagnosed during a GAU admission (Rubenstein et al., 1981). Cheah and Beard (1980) found 184 new major psychiatric conditions in the 241 patients transferred to their GEU from acute medical and surgical wards. Most of these new diagnoses seemed to stem from an awareness of the need for more thoroughly evaluating elderly patients, instead of reflecting substandard quality of care in the referring services.

Excessive use of drugs is a well-known problem facing elderly patients. One inpatient unit was able to show a 43% reduction in the number of prescription drug doses taken by patients during their stays on the unit, despite a concurrent increase in number of diagnoses identified (Rubenstein et al., 1981).

The various GAUs discussed thus far have generally claimed positive effects in many different areas of patient outcomes, including physical, mental, and social health, and functional levels. Several of them have attempted to document these positive effects using measurable outcome variables. Simple audits of patient medical records often revealed measurable effects, such as greater than expected proportion of discharges to home, increased number of diagnoses, and decreased use of drugs. Other positive effects, especially the psychosocial ones, were often more difficult to quantify. More sophisticated measurement instruments and research designs are necessary to document these positive outcomes accurately.

The one exception, Balaban's study, demonstrated only limited benefit of the experimental group receiving special treatment over that of the control group patients, who were getting the usual care. However, conclusions from that study must be qualified in light of the individuals studied. The patients being treated were not a particularly ill group, nor were they typically "geriatric." Furthermore, no analysis was performed to identify particular subgroups of patients who might have especially benefited. Nevertheless, its design and general methodology serve as a useful blueprint for the type of experiments needed to test the effects of these special programs. Similar studies should be repeated in several of the other specialized types of geriatric units among patients who might be expected to benefit more.

Implications

The published reports on GAUs and rehabilitation units, although mostly descriptive and nonexperimental in design, support the contention that major improvements can be made in health care for elderly persons. The GAU provides several distinct aspects of care currently not available to patients in usual settings. These include comprehensive assessment (including assessment of functional status, psychological and social needs, as well as medical assessment), care delivery by interdisciplinary teams, rehabilitation, placement optimization, and arrangement for long-term followup. The reports sup-

port the idea, first proposed in Britain, that such units can have beneficial effects on such patient outcomes as placement location, diagnostic accuracy, functional status, and appropriateness of therapy.

It still remains to be demonstrated, however, whether such units indeed do produce these benefits when compared with a valid control group. Many of the described improvements in patient outcomes may have occurred simply with time alone. The failure of the one controlled study (Balaban, 1980) to show many significant benefits is disappointing but is not enough to discourage most researchers in geriatrics, who cite various problems with the generalizability of that study. Additional well-designed studies are eagerly awaited. Beyond proving overall benefit, it will be important to determine which patients benefit the most from these approaches and at what cost. Such units could be clearly cost effective if they are able to offset expenses by reducing use of other services, such as nursing home care, rehospitalizations, and pharmaceuticals. Even if these units do not achieve dramatic reductions in utilization of other acute and chronic services, their value in improving quality of life and facilitating better long-term care decisions needs careful attention.

A new method for health care delivery that is shown to be cost effective (i.e., able to offset its costs in terms of either saved alternative costs or else by yielding clearly worthwhile benefits) should be enthusiastically received. We may be approaching this point with GAUs. A growing body of descriptive data indicates that these services seem to improve health outcomes. More rigourous studies are needed (and some are underway) to better document these optimistic early reports.

References

Balaban, D. J. Chronic care study: A randomized longitudinal study of patients with chronic diseases treated on a special care unit in an acute care hospital. Final Report to the Robert Wood Johnson Foundation from Leonard Davis Institute of Health Economics, Philadelphia, PA, 1980.

Bayne, J. R., & Caygill, J. Identifying needs and services for the aged. *Journal of the American Geriatrics Society*, 1977, *25*, 264–268.

Brocklehurst, J. C. (Ed.). *Geriatric care in advanced societies*. University Park Press, Baltimore, MD, 1975.

Butler, R. N. *Why survive? Being old in America*. Harper and Row, New York, 1975.

Cheah, K. C., Baldridge, J. A., & Beard, O. W. Geriatric evaluation unit of a medical service: Role of a geropsychiatrist. *Journal of Gerontology*, 1979, *34*, 41–45.

Cheah, K. C., & Beard, O. W. Psychiatric findings in the population of a geriatric evaluation unit: Implications. *Journal of the American Geriatrics Society*, 1980, *28*, 153–156.

Checkryn, J., & Roos, L. Auditing the process of care in a new geriatric evaluation unit. *Journal of the American Geriatrics Society*, 1979, *27*, 107–111.

Dastoor, D. P., Klingner, A., Muller, H. F., & Kachanoff, R. A psychogeriatric assessment program: Three year follow-up. *Journal of the American Geriatrics Society*, 1979, *27*, 162–169.

Federal Council on Aging. *The need for long-term care: Information and issues*. DHHS Publication No. (OHDS) 81-20704. United States Department of Health and Human Services, Washington, DC, 1981.

Ford, C. V., Spar, J. E., Davis, B., & Liston, E. H. Hospital treatment of elderly neuro-psychiatric patients: Initial experience with a new teaching ward. *Journal of the American Geriatrics Society*, 1980, *28*, 446–450, 539–543.

Hughes, E. M., & Lindsey, A. M. A geriatric evaluation service: Follow-up survey. *Journal of the American Geriatrics Society*, 1980, *28*, 320–324.

Ingman, S. R., McDonald, C. A., & Lusky, R. An alternative model in geriatric care. *Journal of the American Geriatrics Society*, 1979, *27*, 279–283.

Kane, R. L., & Kane, R. A. *Long-term care in six countries: Implications for the United States*. Fogarty International Center, National Institutes of Health, Proceedings No. 33. United States Government Printing Office, Washington, DC, 1976.

Kane, R. L., & Kane, R. A. Care of the aged: Old problems in need of new solutions. *Science*, 1978, *200*, 913–919.

Kane, R. A., & Kane, R. L. *Assessing the elderly: A practical guide to management*. D.C. Health, Lexington, MA, 1981.

Kleh, J. When to institutionalize the elderly. *Hospital Practice*, 1977, *12*, 121–134.

Poliquin, N., & Straker, M. A clinical psychogeriatric unit: Organization and function. *Journal of the American Geriatrics Society*, 1977, *25*, 132–137.

Reed, J. W., & Gessner, J. E. Rehabilitation in the extended care facility. *Journal of the American Geriatrics Society*, 1979, *27*, 325–329.

Reifler, B. V., & Eisdorfer, C. A clinic for impaired elderly and their families. *American Journal of Psychiatry*, 1980, *137*, 1399–1403.

Rubenstein, L. Z., Abrass, I. B., & Kane, R. L. Improved care for patients on a new geriatric unit. *Journal of the American Geriatrics Society*, 1981, *29*, 531–536.

Schuman, J. E., Beattie, E. J., Steed, D. A., Gibson, J. E., Merry, G. M., Campbell, W. D., & Krauss, A. S. The impact of a new geriatric program in a hospital for the chronically ill. *Canadian Medical Association Journal*, 1978, *118*, 639–645.

Sloane, P. Nursing home candidates: Hospital inpatient trial to identify those appropriately assignable to less intensive care. *Journal of the American Geriatrics Society*, 1980, *28*, 511–514.

Steel, K. S., Gertman, P. M., Crescenzi, B. S., & Anderson, J. Iatrogenic illness on a general medical service at a university hospital. *New England Journal of Medicine*, 1981, *304*, 638–641.

United States. General Account Office Report. Cost implications for Medicaid and the elderly. United States General Accounting Office, Washington, DC, 1979.

Williams, T. F., Hill, J. G., Fairbank, M. E., & Knox, K. G. Appropriate placement of the chronically ill and aged: A successful approach by evaluation. *Journal of the American Medical Association*, 1973, *226*, 1332–1335.

[From Journal of the American Geriatrics Society, Vol. 31, No. 12, December 1983]

The Clinical Effectiveness of Multidimensional Geriatric Assessment

LAURENCE RUBENSTEIN, MD, MPH*

Comprehensive assessment has become one of the cornerstones of geriatric medicine. By comprehensive assessment is meant the quantification of all relevant medical, functional, and psychosocial attributes and deficits in order to achieve a rational basis for therapy and resource planning. Though comprehensive assessment could rightly be assumed to be a health care goal for younger patients as well, younger patients do not usually suffer from the multisystem medical and psychosocial problems that are characteristic of the frail elderly.

Proper assessment relies on thorough familiarity with principles of medical diagnosis, functional status determination, and psychosocial quantification. Because it is multifactorial, it is usually performed collaboratively with workers in several disciplines, often forming a multidisciplinary team, and usually employs standardized assessment instruments to aid in quantification and reliability.

This presentation will provide a perspective on geriatric assessment by describing the purposes of assessment and its different structural and functional components, surveying the different kinds of existing assessment programs, and presenting some of the evidence that these programs are achieving their goals.

PURPOSES OF ASSESSMENT

Geriatric assessment has several major purposes, listed in Table 1. They include diagnosis (either screening or definitive), planning for therapy and for most appropriate use of services, determining optimal placement, and establishing baseline data for documenting change over time. By diagnosis is meant not only medical diagnosis but diagnosis of functional, psychologic, and social problems as well. This is especially important in light of the accumulating evidence indicating that elderly persons often receive incomplete and inaccurate diagnosis when cared for in the usual medical setting in the absence of a special geriatric approach,[1–4] and that careful systematic assessment can lead to the discovery of important, previously unrecognized, treatable problems.[4–6] This improvement in diagnostic accuracy through assessment stems from an orientation that pays special attention to functional deficits and psychosocial disabilities, and emphasizes searching systematically for unstated treatable problems instead of simply responding to specific complaints.

Improvement in diagnostic accuracy can lead to improvement in treatment. For example, high rates of inappropriate drug regimens and iatrogenic illness have been documented among the elderly,[4,7–9] and preliminary data suggest that careful assessment can help to ameliorate this problem.

Avoiding inappropriate use of services, especially those in institutional settings, has been a major objective of most geriatric assessment programs for reasons of both compassion and cost. The 1979 Report of the United States General Accounting Office[10] concluded that at least 10 per cent to 20 per cent of patients in skilled nursing facilities (SNFs) and 20 per cent to 40 per cent of patients in intermediate level care facilities (ICFs) receive unnecessarily high levels of care. Such inappropriate use is undesirable on several counts: It is wasteful of scarce resources; it can create further disability by leading to premature labeling of a patient as irremedially ill; and institutional environments are themselves hazardous to the aged.[7,9] There is substantial and growing evidence that assessment can lead to improved appropriateness of placement.[2,4,5,11–14] Finally, most assessment programs are designed to obtain accurate data for documentation of patient improvement over time as well as for program evaluation. Assessment, using any of several validated quantitative instruments, can serve both purposes.

The first indications that geriatric assessment could be effective came from Great Britain, where the units originated. Marjorie Warren, generally considered one of the founders of modern geriat-

TABLE 1
Purposes of Geriatric Assessment

Screening for treatable disease
Accurate diagnosis
Rational therapeutic planning
Assuring appropriate use of services
Determining optimal placement
Documenting change over time

* Chief, Geriatric Evaluation Unit, Assistant Clinical Director, GRECC, Veterans Administration Medical Center, Sepulveda, California and Assistant Professor of Medicine, UCLA School of Medicine, Los Angeles.

Address correspondence and reprint requests to Dr. Rubenstein: Chief, Geriatric Evaluation Unit, Sepulveda VA Medical Center, Ward 22A, 16111 Plummer Street, Sepulveda, CA 91343.

Presented at the NIH Technology Assessment Conference, Evaluating the Elderly Patient: The Case for Assessment Technology, Bethesda, Maryland, June 29–30, 1983. Other reports from this conference appear elsewhere in this issue and in the November issue.

rics, initiated the concept of specialized geriatric assessment units during the late 1930s while in charge of a London workhouse infirmary. The infirmary was filled primarily with bedfast and largely neglected elderly patients who had not received proper medical diagnosis or rehabilitation. The high quality of nursing kept the patients alive, while the lack of diagnostic assessment and rehabilitation kept them disabled. Dr. Warren systematically evaluated the conditions of these patients and began policies of mobilization and selective rehabilitation. She was able to get most of the long bedfast patients out of bed, often walking, and some patients were even discharged to their homes. As a result of her experiences, Dr. Warren advocated comprehensive assessment and an attempt at rehabilitating all elderly patients before admitting them to long-term care hospitals, and her approach has remained a basic principle of British geriatrics. The present British system of "progressive geriatric care," which is centered on geriatric assessment, is based largely on Dr. Warren's reports, along with those of other pioneering geriatricians such as Lionel Z. Cosin and W. Ferguson-Anderson.[3,15]

COMPONENTS AND TYPES OF GERIATRIC ASSESSMENT PROGRAMS

In the United States, many geriatric assessment programs have been established, mostly in the last decade. These programs have a wide variety of structural and functional components and are geared to differing types of populations and programs, but they share some common characteristics. Virtually all programs include multidimensional assessment, using one or more sets of measurement instruments to quantify functional, psychologic, and social parameters. Most of them use interdisciplinary teams to pool expertise and enthusiasm in working toward common goals. In most, assessments are coupled with an intervention program, such as rehabilitation, counseling, or placement. Some of the major characteristics that vary between programs are listed in Table 2.

A variety of overall functions can be performed by geriatric assessment programs. While assessment is common to all, many also include treatment and rehabilitation. Some include acute care. Most include the determination of optimal placement. Research and education are important aspects of some programs and generally have profound impacts on programmatic structure.

Program location largely determines the types of patients assessed and the functions performed. Assessment programs in acute-care hospitals generally admit patients from acute-care inpatient services, though many also admit directly from the community if inpatient care is required. Hospital programs usually combine treatment and rehabilitation with assessment and placement. Outpatient clinics or free-standing units generally assess patients not requiring hospitalization and usually do not perform extensive treatment or rehabilitation. Programs performing assessment in patients' homes can obtain unique insights into how patients live and function at home, but the cost and logistic problems associated with home visits limit the size and scope of such programs. Programs in long-term care facilities or chronic-care hospitals assess patients on admission to determine care needs and appropriateness of placement, and some perform periodic reassessments for the same purposes as well as to document change over time.

The referral sources for patients, as well as the inclusionary and exclusionary admission criteria, also depend on the program setting and intended functions. Although age criteria are admittedly ar-

TABLE 2
Geriatric Assessment Programs: Characteristics and Variants

Intended function
Assessment
Rehabilitation
Acute or chronic treatment
Placement
Education
Research
Location/setting
Acute-care hospital
Chronic-care hospital
Long-term care facility
Outpatient clinic or office
Freestanding unit
Patient homes
Patient source
Community (direct application or referral)
Acute hospital
Long-term care facility
Inclusion criteria for patients
Minimum age (e.g., ≥65, ≥75)
Type of problem (e.g., psychiatric, placement)
Degree of disability (e.g., inability to function independently)
Exclusion criteria for patients
Poor prognosis
Unstable condition
Organization
Team composition
Participating support services
Size of unit
Patient-to-staff ratio
Payment source
Follow-up capacity
Time allowed for assessment
Approach to assessment
Dimensions included
Testing of actual performance vs presumed capability
Use of test batteries vs clinical judgments
Types of record-keeping formats

TABLE 3
Measurable Dimensions in Geriatric Assessment

Physical health
Diagnoses/conditions present
Physiologic severity indicators
Quantification of medical services used
Self-ratings of health or disability
Functional ability
Activities of daily living (ADL) scales
Instrumental ADL scales
Psychologic health
Cognitive function (mental status)
Affective function
Social parameters
Social interaction network
Social support needs and resources

bitrary, programs usually require that patients be at least 65, and some have a higher minimum age, to ensure that the programs retain their "geriatric" missions and do not become programs caring for persons of all ages with chronic disorders. The types of patients referred can vary widely between programs. Some programs have a geropsychiatric orientation and accept primarily patients with problems such as dementia and depression. Others, associated with acute-care medical services, accept patients with acute medical problems. Most, however, accept primarily patients with subacute and chronic problems not requiring acute medical or surgical hospitalization, who are nevertheless highly likely to require long-term institutional care.

Programs providing substantial inpatient treatment or rehabilitation can increase their impact by including only patients with reasonable "rehabilitation potential." However, prognostication is at best an inexact art, and every geriatrician knows many instances when patients not expected to do well have made remarkable recoveries. Some risks of failure must be taken, since accepting only patients expected to recover or rejecting patients on the basis of poor prognosis can easily become self-fulfilling.

The organization of assessment programs varies considerably, but most include a core team of a physician (or physician extender), nurse, and social worker. To this core are added other specialists, who either participate in the basic assessment or are called in as consultants (e.g., psychologist or psychiatrist, occupational therapist, physical therapist, audiologist, dentist, optometrist or ophthalmologist, dietician, public health nurse). The size of the team is influenced by several factors, including program goals, setting, patient load, and funding or reimbursement levels. Most funding sources and insurance companies have restrictive limitations on what services will be paid for, and that profoundly affects what services can be offered. However, as evidence accumulates that these programs can be cost-effective, not only in improving quality of life but in reducing overall health care costs for the elderly, funding sources will probably expand.

Approaches to assessment vary between programs, again depending upon program goals and settings. Most include a multidimensional assessment in which most or all of the areas of medical problems, functional disabilities, psychologic status, and social network and needs are covered. Table 3 lists the most important of the measurable dimensions of geriatric assessment. Some programs (e.g., CARE, PACE, OARS) use a comprehensive test battery or multidimensional assessment to achieve this, while others select from among the existing unidimensional instruments best suited to their particular programs. In some programs, individual team members complete separate assessment instruments corresponding to their own areas of expertise, while in other programs a single person, such as a nurse practitioner or a researcher, completes the entire assessment instrument(s). Some programs make special efforts to ensure reliability and validity of their instruments in their own settings, while others simply use instruments validated in other places and assume that the instruments are adequately reliable and valid. Some programs use instruments from which data are easily computerized, while others are not concerned with data tabulation.

It must be acknowledged that a geriatric assessment per se does not absolutely require the use of specific instruments and scales, especially if the person making the assessment is also the primary person providing therapy. In fact, it may be that any kind of special attention to better definition of the care needs of the frail elderly provides as much benefit as a more complex quantitative assessment complete with a multitude of instruments and scales. However, the use of easy-to-administer, well-validated assessment instruments encompasing the major domains of geriatric assessment makes the process of assessment considerably easier to perform and to teach and also more reliable. In addition, these instruments facilitate transmission of understandable clinical information between health care providers, permitting smooth teamwork to occur, meaningful and valid data to be tabulated, and therapeutic progress to be measured over time. In fact, it is questionable whether geriatric assessment programs could have become as useful and as widely accepted as they are without the use of specific assessment instruments to facilitate documentation and communication, much less diagnosis.

A recent book by Kane and Kane[16] provides an excellent analysis of the existing geriatric assessment instruments and describes in detail which ones are best for each particular setting and patient population.

In our experience, the instruments most useful in supplementing the standard medical history and physical examination have been in the psychologic and functional areas.

EVIDENCE FOR EFFECTIVENESS OF GERIATRIC ASSESSMENT PROGRAMS

Most geriatricians are firmly convinced of the effectiveness of geriatric assessment programs for improving both the process and the outcome of geriatric care, even though well-designed studies clearly leading to this conclusion are only beginning to appear. The many published reports on geriatric assessment units (GAUs) show clear associations between the programs and major improvements in outcome of care, though these reports have been based primarily on descriptive or quasi-experimental studies. Among these reported improvements from GAUs, summarized in Table 4, are improved diagnostic accuracy, improved placement location, improved functional status, and improved use of medications.

The first report to describe the success of a program in the United States, published in 1973, came from T. Franklin Williams's outpatient assessment program in Monroe County, New York. Dr. Williams's pioneering program assessed all patients referred for nursing home placement in the county in an attempt to insure the appropriateness of these placements and to decrease unnecessary use of long-term care facilities. His team found that only 38 per cent of patients referred for nursing home placement actually needed such long-term skilled nursing care, while 23 per cent of patients were able to return to their homes and 39 per cent to board and care facilities following careful assessment and recommendation of specific therapy. Expert judgments made by an independent team of observers as to appropriateness of placement locations before and after the initiation of the Monroe County program indicated that major improvement in placement decisions were being made—from 50 per cent to 60 per cent appropriate before the program to 84 per cent appropriate afterward. Other authors have reported similar improvements in placement locations associated with assessments on GAUs.[12–14,17,18]

Several reports have examined functional status of patients before and after treatment at those GAUs that include rehabilitation along with the assessment. These reports usually have used a validated measure of functional status, such as the Katz index of activities of daily living (ADL), to document change over time. They uniformly show that many if not most patients improve during their stays in the GAUs. However, the lack of control groups in most of the reports prevents a skeptical reader from clearly concluding that the improvement came from the GAU rather than from the effect of time alone.[18,19]

Another major area of GAU impact is the improvement in diagnostic accuracy, usually indicated by the diagnosis of new, treatable problems. Many studies have found that large numbers of previously undiagnosed problems are uncovered during careful geriatric assessment. Depending on each study's criteria for considering newly documented problems as new diagnoses (some counted only major new treatable problems), new diagnoses were found in frequencies varying from 0.76 per patient to almost 4 per patient. Most of these new diagnoses seemed to stem from an awareness of the need to evaluate elderly patients more thoroughly and to search specifically for treatable problems, although they might also reflect a lack of diagnostic thoroughness in the referring services.[18]

TABLE 4
Improved Patient Outcomes That Can Derive from Geriatric Assessment Programs

Improved diagnostic accuracy
More appropriate placement
Less dependency on skilled nursing facilities
Improved functional status
More appropriate use of medications
Better coordinated use of available community support services
Improved emotional status and sense of well-being

Improvement in quality of treatment is difficult to quantify. One measurable parameter, use of prescription drugs, was examined in several programs. In those programs, drug prescribing generally was made more appropriate, and it usually decreased in quantity despite a concurrent increase in number of diagnoses identified.[4]

Two recent controlled studies have begun to confirm these descriptive reports. They also show that the control group patients who survive the initial hospitalization also tend to improve in functional status over time, indicating that not all the functional improvement can be attributed to the GAU itself. Nonetheless, the benefits from GAUs, at least to certain subgroups of elderly patients, are becoming more and more evident.

J. D. Frengley's group in Cleveland recently reported data from a retrospective case-control study at their inpatient GAU in a rehabilitation hospital. In their study, 50 consecutive patients aged 70 and over discharged from that GAU were compared retrospectively with 50 control patients discharged from other medical wards in the same hospital, matched for age, sex, and primary diagnosis. The mean lengths of stay for patients in the two groups were comparable and were fairly long (68.0 and 70.7 days respectively) but reflected the extensive rehabilitation being performed along with the assessment. Discharge location was significantly better for the GAU group than the controls (80 per cent vs 62 per cent were discharged to home settings and 20 per cent vs 38 per cent to nursing homes, respectively). Patients in the GAU were more likely than control patients to improve their functional status (Katz ADLs, independent ambulation, and continence status) during their hospitalizations. At follow-up evaluations, performed several months after discharge, the living locations

had not substantially changed, and significantly more GAU than control patients were still at home. However, functional status of control patients had also improved at follow-up and approached the levels of the GAU patients.[30]

Our group at the Sepulveda Veterans Administration (VA) GAU has been conducting a prospective randomized experiment, comparing inpatient candidates randomly assigned to enter the GAU or to continue receiving care on their acute-care hospital wards. Though the study is still in progress, preliminary data indicate significant reductions in one-year mortality, rehospitalization rates, use of nursing homes, and reduced overall use of institutional services by GAU patients compared with control patients. In fact, the savings in direct medical care costs for the GAU group appear to be substantial and may well be more than enough to pay for the program.

One important goal of assessment programs should be to identify the subgroups of patients that can be expected to benefit particularly from the programs, in order to make maximal use of scarce resources. While it might be argued that the majority of elderly persons could benefit from careful assessment, most old people are generally healthy, and the relative yield of assessment tends to be lower for healthy than for frail or ill elderly. Predictive studies are underway at the Sepulveda VA and UCLA to identify persons most likely to benefit from geriatric assessment. In general, they are those who are on the verge of needing institutionalization, who have multiple functional problems, who have had inadequate primary medical care, and who have relatively poor social support networks. These at-risk elderly seem to derive especially great benefit from assessment and associated therapeutic interventions.

Exactly what constitutes the crucial part of the assessment process that makes the difference is unclear. The main benefits from GAUs may come simply from paying special attention to the high-risk frail elderly, instead of neglecting them, regardless of what multidimensional assessment instruments are used. Nevertheless, I hope this overview of geriatric assessment has given a convincing picture of the mounting evidence of the substantial clinical effectiveness of geriatric assessment.

REFERENCES

1. Williamson J, Stokoe IH, Gray S, et al. Old people at home: Their unreported needs. Lancet 1:1117, 1964
2. Williams TF, Hill JG, Fairbank ME, et al. Appropriate placement of the chronically ill and aged. A successful approach by evaluation. JAMA 226:1332, 1973
3. Butler R. Why Survive? Being Old in America. New York, Harper & Row, 1975
4. Rubenstein LZ, Abrass IB, Kane RL. Improved care for patients on a new geriatric unit. J Am Geriatr Soc 29:531, 1981
5. Brocklehurst JC et al. Medical screening of old people accepted for residential care. Lancet 2:141, 1978
6. Cheah KC, Beard OW. Psychiatric findings in the population of a geriatric evaluation unit: Implications. J Am Geriatr Soc 28:153, 1980
7. Steel KS, Gertman PM, Crescenzi BS, et al. Iatrogenic illness on a general medical service at a university hospital. N Engl J Med 304:638, 1980
8. Ouslander JG. Drug therapy in the elderly. Ann Intern Med 95:711, 1981
9. Jahnigen D, Hannon C, Laxson L, et al. Iatrogenic disease in hospitalized elderly veterans. J Am Geriatr Soc 30:387, 1982
10. United States General Accounting Office Report: Cost implications for Medicaid and the elderly. Washington, DC, United States General Accounting Office, 1979
11. Kleh J: When to institutionalize the elderly. Hosp Pract 12:121, 1977
12. Schuman JE, Beattie EJ, Steed DA, et al. The impact of a new geriatric program in a hospital for the chronically ill. Canad Med Assoc J 118:639, 1978
13. Reed JW, Gessner JE. Rehabilitation in the extended care facility. J Am Geriatr Soc 27:325, 1979
14. Sloane P. Nursing home candidates: Hospital inpatient trial to identify those appropriately assignable to less intensive care. J Am Geriatr Soc 28:511, 1980
15. Brocklehurst JC (ed.): Geriatric care in advanced societies. Baltimore, University Park Press, 1975
16. Kane RL, Kane RA. Assessing the elderly: A practical guide to management. Lexington, Mass, DC Heath, 1981
17. Bayne JR, Caygill J. Identifying needs and services for the aged. J Am Geriatr Soc 25:264, 1977
18. Rubenstein LZ, Rhee L, Kane RL: The role of geriatric assessment units in caring for the elderly: An analytic review. J Gerontol 37:513, 1982
19. Applegate WB, Akins D, Vanderzwaag R, et al. A geriatric rehabilitation and assessment unit in a community hospital. J Am Geriatr Soc 31:206, 1983
20. Lefton E, Bonstelle S, Frengley JD. Success with an inpatient geriatric unit: A controlled study. J Am Geriatr Soc 31:149, 1983

[From Journal of the American Geriatrics Society, Vol. 33, No. 6, June 1985]

Geriatric Consultation Teams in Acute Hospitals:

Impact on Back-up of Elderly Patients

William H. Barker, MD, T. Franklin Williams, MD,† James G. Zimmer, MD, MPH,* Carol Van Buren, MS,* Sharon J. Vincent, MSW,‡ and Susan G. Pickrel, MS**

Back-up of elderly patients in hospital awaiting long-term placement has become a major problem in some areas of the United States and elsewhere. In 1982, geriatric consultation teams (physician, nurse, and social worker) were introduced into six acute hospitals in Monroe County, New York, to help alleviate the problem through more attention to restoration of patient function and comprehensive discharge planning. Over a six-month period, 4,328 newly hospitalized patients aged 70 or older were screened, and geriatric consultations were provided for 366 (8.5 per cent) who were judged to be at risk of requiring prolonged hospital stays. During this period, the mean monthly census of elderly patients backed up in hospital declined 21 per cent, a reversal of previous rises that could not be explained by any other identifiable factors. The impact was on length of stay on back-up status rather than rate of entry to that status. A variety of medical, rehabilitative, and social interventions accounted for this outcome. A number of health care system barriers to expeditious rehabilitation and discharge of hospitalized elderly patients were identified. Geriatric consultation was deemed useful for implementation in acute hospitals in other settings. *J Am Geriatr Soc 33:422, 1985*

The need for innovative approaches to providing long-term care services for the elderly is receiving increasing attention in the United States, Great Britain, and elsewhere.[1,2] A significant manifestation of unmet needs for long-term care in some parts of the United States is the growing number of elderly persons who experience prolonged and costly stays§ in acute-care hospitals for want of suitable discharge disposition.[3,4] A variety of strategies have been recommended for alleviating this problem in acute-care hospitals.[5,6] Consultation on geriatric patients admitted to acute-care medical and surgical services is one such strategy that has been reported to reduce prolonged hospital stays among elderly patients admitted to one hospital in Great Britain.[7] The present report describes the impact of such a strategy undertaken on a trial basis in six acute-care hospitals in Monroe County, New York, during 1982.

Received from the Center on Aging and the Department of Preventive, Family, and Rehabilitation Medicine, University of Rochester Medical Center, and Monroe Community Hospital, Rochester, New York. Supported by a grant from the Rochester Area Hospitals Corporation, Rochester, New York.

* Department of Preventive, Family, and Rehabilitation Medicine, University of Rochester Medical Center.

† Director, National Institute on Aging, formerly departments of Medicine and Preventive Medicine, University of Rochester Medical Center, and Medical Director, Monroe Community Hospital.

‡ Monroe Community Hospital.

Address correspondence and reprint requests to Dr. Barker, Box 644, University of Rochester Medical Center, 601 Elmwood Avenue, Rochester, NY 14642.

§ Variably labeled "back-up," "backlog," "bed-blocking," "alternate care," and "administratively necessary days" in popular and professional publications.

Materials and Methods

SETTING

Monroe County, New York, is a mixed urban-suburban-rural area with a population of 702,000 (1980 census), 11 per cent of whom are 65 years of age or older. The community has eight acute-care hospitals, ranging in size from the 741-bed hospital of the University of Rochester Medical Center to a 60-bed community hospital, providing a total of 3.6 beds per 1,000 people. Since 1950, the county's eight acute-care hospitals have participated in a community-wide prospective reimbursement program, a forerunner of emerging policy for improving efficiency of hospital use in the United States; this program is administered by the Rochester Area Hospitals' Corporation (RAHC).[8] Community resources specifically related to long-term care of the elderly include the publicly funded Monroe Community Hospital for the care of the chronically ill and aged, which, together with 43 private nursing homes, provides several thousand long-term care beds. The county also has a variety of home support services.

Over the past two decades, the occurrence of "back-up" of disabled elderly patients in acute-care hospital beds awaiting long-term care placement has been documented repeatedly in community-wide surveys in Monroe County.[7,10] Although alleviated temporarily by the rapid expansion of the number of nursing home beds in the early 1970s, the problem increased to unprecedented heights in 1980 and 1981, as shown in Table 1. A task force organized by RAHC in 1981 to address this problem offered the following as one of its major recommendations:

> . . . to establish geriatric evaluation/consultation teams in each hospital to provide assistance and recommendations for improving or maintaining the functional capabilities of patients at risk of back-up, and recommendations and assistance in the use of a full range of long-term care services in our community.[11]

In response to this recommendation, and with funding from RAHC, six of the acute-care hospitals, containing 86 per cent of hospital beds in the county, developed a six-month demonstration geriatric consultation project to be coordinated and evaluated by the Center on Aging at the University of Rochester.

TABLE 1. Average Number of Patients "Backed up" per Week in Acute Hospital Beds in Monroe County, New York

Year	Back-up Patients
1977	115
1978	139
1979	165
1980	165
1981	212

Source: Computed from weekly one-day point prevalence surveys of all Monroe County acute hospitals, the surveys were conducted by the Finger Lakes Health Systems Agency and the Rochester Area Hospitals' Corporation. During the years listed, the number of acute care beds and occupancy rates remained essentially constant.

CONSULTATION TEAMS

Each hospital established a geriatric consultation team (GCT) consisting of staff members with established interest in the care of elderly patients and representing the disciplines of internal medicine, nursing, and social work. Members of the professional staff from Monroe Community Hospital conducted fortnightly consultation rounds with the teams at the other hospitals in an advisory and training function in geriatrics and long-term care.

The project focused on hospitalized patients aged 70 and older—the group known to account for over 80 per cent of the back-up problem. All new admissions of persons in this age group were briefly screened by one member of each hospital's consultation team approximately once every other day. After excluding elective surgical admissions and patients admitted in the terminal stage of illness, the teams selected for consultation those acutely admitted elderly patients deemed to be at high risk of experiencing back-up in hospital. Factors used in identifying such patients included the obvious presence of two or more of the following characteristics at admission: living alone, being over 80 years old, low income, evidence of mental impairment, and presence of significant physical disability.

For each consultation, the team obtained a full list of diagnoses, treatments, nursing, and social problems from the patient's charts, supplemented by information from nurses, social workers, and medical staff members caring for the patient and from the interview and examination of the patient. The data were collected on a modified version of a long-term care preadmission assessment form routinely used in Monroe County and were then used to produce a composite profile of problems that might impede the patient's progress toward discharge from the hospital.* This profile included information on where and with whom the patient lived, community services he or she had received, active and chronic medical problems, medications, aids, and devices used, functional level (activities of daily living), and mental and behavioral status. A summary of findings and recommendations was entered in the medical record as a consultative report. Follow-up by the GCT was conducted over the next several weeks to determine the degree to which recommendations had been carried out. Inasmuch as the back-up problem was considered an urgent issue (with hospital occupancy running between 95 and 100 per cent), often causing considerable delays in admitting patients for elective procedures, the project received general support from the administrative and professional staffs of the hospitals.

EVALUATION

The principal objective of the project was to reduce the number of elderly patients backed up in the community's acute-care hospital beds. Secondarily, it was intended to document barriers in the hospitals to maintaining or restoring independence of function and to timely discharge and was meant

* A copy of the data instrument may be obtained by writing to Dr Barker.

to improve the skills of staff members in providing these services.

Backed-up patients were defined as those who had been placed on alternate-care status by the hospital utilization review committee, that is, patients who were judged to no longer need acute hospital care. Since 1979, RAHC has conducted a weekly one-day survey of the number of patients on alternate care in all the hospitals. The resulting data were used to construct a trend line of the mean monthly alternate-care census in the community for the two-year period (January 1980–December 1981) prior to and the 12-month period (January–December 1982) during and following implementation of the geriatric consultative team project. The GCT project was operational for the six-month period from January to June 1982. It was felt that significant decline in the alternate-care census in the six participating hospitals during this six-month period would be an indication of success for the project.

In the absence of a true control experience for comparison, other changes in the community's long-term care services that might have affected the alternate-care census have been taken into account in interpreting the findings. For instance, 30 new nursing home beds were opened at the end of March 1982 specifically for the purpose of relieving the hospital back-up problem. This resulted in expedited discharge to these nursing home beds of an average of five patients a week between April and June 1982. There were no apparent differences between these back-up patients and the full population of back-up patients as defined in the prevalence surveys described below. In constructing the alternate-care census trend line to reflect impact of the GCT, this confounding event was taken into account by deriving an expected trend line based on the assumption that had these patients not been discharged to the new nursing home beds, they would have remained in hospital and been discharged at the same rate as other patients on back-up at the same time.

For purposes of explaining any observed change in the alternate-care census attributable to the project, several other types of data were collected and analyzed. First, selected demographic and diagnostic characteristics of all patients aged 70 or above admitted to hospital and of patients receiving geriatric consultation were analyzed on a month-to-month basis to determine whether the pool of elderly patients changed in the six-month course of the project. Second, the number of persons aged 70 or over who were newly placed on alternate care each week was monitored to determine whether there was any change in the rate of patients reaching this status in hospital. Third, one-day prevalence surveys of all alternate-care patients in the hospitals were conducted at ten-week intervals (January 13, March 31, and June 9—all Wednesdays) to determine whether the consultative process was affecting a change in the mix or the length of stay of patients on alternate care. Fourth, medical records for those patients seen in consultation were reviewed within two to four weeks to assess whether or not the recommendations recorded at the time of consultation had been acted upon.

Minutes of the fortnightly consultation rounds conducted by the Monroe Community Hospital staff with the teams of the other hospitals were analyzed to identify health-care system factors or issues that contributed to a delay in discharge, i.e., issues that were barriers.

Results

ADMISSIONS AND CONSULTATIONS

Between January and June 1982, a total of 4,328 admissions of persons aged 70 or above were registered and screened, 366 patients (8.5 per cent) received geriatric consultations. Selected characteristics of all admitted patients 70 or above and of those receiving consultations are summarized and compared in Table 2. Patients referred for geriatric consultation were older and more likely to be female and widowed than the norm. They were also more likely to have come from sheltered housing and to have been admitted to hospital on an emergency basis. Admitting diagnoses among patients referred for consultation were proportionately similar to diagnoses for all admissions, except for a slight excess of fractures and psychobehavioral diagnoses among the former.

ALTERNATE-CARE PATIENTS

Figure 1 depicts the mean monthly census of patients on alternate care in hospital from January 1980 through December 1982. The six-month period (January–June 1982) during which the consultation project was in effect is bracketed and can be compared with the same periods during the two preceding years, which have also been bracketed. The trend line during this period has been further analyzed to adjust for the effect of the opening of new nursing home beds in March 1982. The heavy line reflects the true mean monthly census, whereas the broken line reflects the pattern that would have been expected in the absence of the expedited discharge of back-up patients to new nursing home beds.

The overall pattern shows first that the census

TABLE 2. Selected Characteristics of Elderly (>70 Years Old) Admissions and Geriatric Team Consultations at Six Monroe County Hospitals, January–June 1982

Characteristics	Admissions*		Consultations†	
	N	(% of Total)	*N*	(% of Consultations)
Age				
70–84	3,267	(75)	222	(61)
≥85	1,061	(25)	123	(34)
Sex				
Female	2,451	(57)	229	(63)
Male	1,878	(43)	134	(37)
Marital status				
Married	1,768	(41)	83	(23)
Widow	2,037	(47)	211	(58)
Other	537	(12)	60	(16)
Dwelling				
Home	3,433	(87)	296	(81)
Nursing home	399	(10)	13	(4)
Sheltered housing	117	(3)	40	(11)
Type of admission				
Emergency	2,495	(61)	285	(78)
Scheduled	1,563	(39)	70	(19)

* *N* = 4,328.

† *N* = 366 (8.5 per cent of total). Information missing on small number of consultations.

increased steadily though somewhat erratically throughout 1980–81, and second that there was a sustained decline in the census during the six-month course of the consultation project, followed by a plateau and then a rise in the trend line after discontinuation of the project early in July. In comparable six-month intervals during the preceding two years there were modest but unsustained periods of decline lasting for two to three months, thus the decline seen in 1982 does not appear to be simply a seasonal effect. The hypothetical trend line, removing the effect of the new nursing home beds, shows the same sustained though more gradual decline in the alternate-care census. The mean monthly alternate-care census for hospitals during the six months that the consultative teams were active declined from a peak value of 210 early in the period to 131 in June, a 28 per cent change. The decrease, after correcting for the effect of opening new nursing home beds, was 21 per cent.

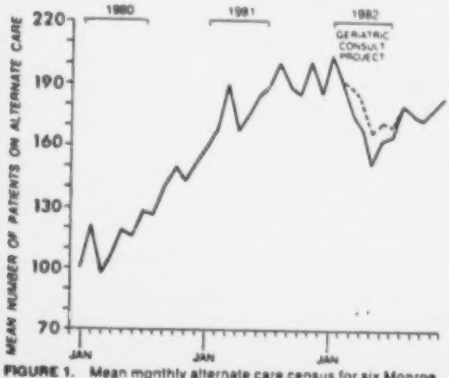


FIGURE 1. Mean monthly alternate care census for six Monroe County hospitals, January 1980–December 1982. Data for trend lines computed from weekly one-day prevalence surveys of alternate-care patients in the six hospitals by the Rochester Area Hospitals' Corporation. The broken line (- - -) for March–August 1982 represents the pattern that might have existed if new nursing home beds had not become available at the end of March 1982.

Analysis of alternate-care survey data collected from the two acute hospitals in the county that did not introduce consultation teams showed a fluctuating census between 38 and 44 on weekly one-day surveys, with no evidence of sustained decline during the period that the project was in effect in the other six hospitals.

The weekly number of elderly patients newly transferred to alternate-care status among the six project hospitals fluctuated between 24 and 36 (average of 29) from January through June, representing a ratio of approximately one transfer to alternate-care status to every seven hospitalizations of persons 70 years of age and above. There was no evidence of change in the rate of transfer to alternate-care status during the course of this project.

Major characteristics of patients aged 70 or above who were on alternate care during the three one-day prevalence surveys conducted on January 13, March 31, and June 9 remained remarkably con-

TABLE 3. One-day Prevalence Surveys of Alternate-care Patients (≥70 Years Old) in Six Monroe County Hospitals, 1982

	Survey Dates			% Change (January–June)
	January 13	March 31	June 9	
Number of patients	164	150	121	
Length of stay on alternate care				
Mean days	96	99	86	10%
Median days	73	85	55	25%
Length of stay on acute care				
Mean days	36	34	28	22%
Median days	23	18	20	13%

stant. During each survey, approximately 40 per cent were over age 85, 70 per cent were women, 67 per cent were widows, 70 per cent were initially admitted to hospital from home and 30 per cent from institutions, and 90 per cent were emergency admissions. Distribution of admitting diagnoses, activities of daily living, functional status, and mental status also remained very similar in the three surveys.

Table 3 compares selected hospital utilization parameters of the patients included in the three surveys. The mean and median lengths of stay during the acute-care phase of hospitalization and on post-acute alternate-care status showed moderate declines between the January and June surveys. Not shown is the fact that the numbers of episodes of temporary transfer back to acute-care status declined from 53 in January to 29 in June, a decline of 45 per cent.

These data indicate that the project had little effect on the rate of new admissions to alternate care or selectively on any specific subgroups of patients at risk. The impact was rather achieved through improving patient management and rate of discharge, ultimately reflected in decreased lengths of stay for patients on both alternate-care and acute-care status. As noted in Table 3, the reduction in lengths of stay occurred during the latter three months of the project (March–June). In fact, during the first three months, while the total number on alternate care declined, there was a small increase in the median length of stay among persons who were on alternate care. This suggests that the GCTs' initial impact was on less complicated patients destined to remain on alternate care for only short periods of time, thus leaving a proportionately larger number of long stayers. The impact on patients with more difficult problems with potentially longer stays on alternate care required a longer period of time to become manifest. The decline in lengths of stay on acute care reflects the aforementioned reduction in number of transfers of alternate-care patients temporarily back to acute-care status.

TEAM RECOMMENDATIONS

An average of three recommendations were offered per patient who received consultation. The most frequent recommendations are summarized in Table 4. Changes in overall care plan, particularly with a view to anticipating discharge, was a universal recommendation. The other listed recommendations constitute a range of specific activities intended to restore and preserve maximal functional independence and ensure posthospital placement at an appropriate level of care. Through follow-up review of medical records, an attempt was made to determine the extent to which recommendations were acted upon. Sufficient information was available to make such a determination in approximately half of the cases (152 of 366). Table 4 includes these results, indicating that the recommendations were acted upon 50–70 per cent of the time.

SYSTEM ISSUES

In many instances, the joint rounds conducted by the Monroe Community Hospital staff identified characteristics of the system of patient care that constituted potentially correctable obstacles to maintaining function and achieving expeditious discharge of older hospitalized patients. These "system issues" are briefly summarized in four categorical areas as follows. In most instances they were noted in more than one hospital.

1. Patient Care Issues. Remediable psychosocial problems, including, most commonly, reactive depression of long-stay patients and confusion or agitation related to medications were either unrecognized or inadequately addressed by attending staff members. "Well-person" routines, such as providing the recuperating patient with normal clothes and social stimulation and encouraging independence in eating, toileting, and other daily activities, were not included in nursing care plans, which tended to focus strictly on acute care. Communication between specialists and primary care-

TABLE 4. Ten Most Frequent Geriatric Team Recommendations in 366 Patient Consultations*

Recommendations	% of Consultations	% Carried Out†
Care plan change	49	53
Medication change	30	51
Home care referral	29	48
Physical therapy referral	27	55
Skilled nursing facility referral	16	47
Patient/family education	16	67
Socialization	15	69
Bowel/bladder training	13	64
Subspecialty referral	11	55
Rehabilitation facility referral	11	58

* Average of three recommendations per consultation.
† Based on 182 cases in which medical record documentation was sufficient to permit a determination.

givers, between the attending ward staff and the rehabilitation staff (such as physical therapists), and between the attending physician and the patient's family in coordinating patient care and discharge planning was lacking.

2. Structural or Administrative Issues. Lack of Medicare coverage often led to discontinuation of physical and/or occupational therapy, which was needed to maintain function in patients awaiting nursing home transfer. Several hospitals had occupational and speech therapy services that were too limited to meet the needs of their disabled elderly patients. Supportive prostheses and equipment, including elevated toilet seats, walkers, elevated chairs, hemiwheelchairs, and beds of various heights to help patients achieve maximum functional independence were often unavailable in the acute hospital.

3. Community-related Issues. Coordination between hospital personnel and community-based personnel in discharge planning was often deficient. In particular, there was a need to have community health nurses assess the home environment while the patient was still in the hospital as an adjunct to developing realistic home-care plans. The lack of close working relationships among hospitals, nursing homes, and intermediate-care facilities impeded smooth transitions between institutions. Respite care was rarely offered as an alternative to hospital admissions in situations of family exhaustion. A lack of special services for elderly blind patients was noticed.

4. Financial and Legal Issues. Delays in determining Medicaid eligibility delayed referral of patients for placement in long-term–care facilities. Furthermore, nursing homes showed limited willingness to accept Medicaid-financed patients. Counseling of families with regard to legal matters, such as ownership of the patient's home and entitlement to protective service, was lacking. Establishment of conservatorship arrangements presented problems because of delays in the judicial process.

Discussion

The Geriatric Consultation Team Project represents a short-term, community-wide demonstration of the potential for geriatric teams to reduce the problem of back-up of elderly patients in acute-care hospitals.

In the absence of a simultaneous control experience for comparison, the project's impact was assessed by analyzing several types of observational data on the target problem before, during, and after the six months when the teams were at work. The mean monthly census of alternate-care patients demonstrated a 21 per cent decline that correlated with implementation of the project and that could not be readily attributed to either a seasonal trend or to other changes in the community's health services. Furthermore, the downward trend reversed itself shortly after termination of funding of the demonstration project and dismantling of the consultative teams. Finally, there was essentially no decline in the alternate-care patient problem in the two acute hospitals in the community that did not participate in the project. Observations on incident and prevalent alternate-care cases revealed that the decreasing monthly census was associated with reduction in length of stay on alternate care rather than reduction in the rate of admission to alternate care from acute care. This supports the contention that the reduction in the alternate-care census over the period of activity of the GCTs was related to improvement in patient management and the patient discharge process rather than to some extraneous system-wide reduction in entry to alternate-care status.

Review of the recommendations provided by the geriatric team consultations revealed a spectrum of activities related to patient rehabilitation and plan-

ning for appropriate long-term care. Whereas such activities may be initiated during the acute phase of hospital care, most are not considered sufficient grounds for utilizing acute-care beds in United States hospitals and hence are likely to be implemented during the post-acute phase when patients have been placed on alternate care. This being the case, one might expect, as was observed here, that the impact of geriatric team consultations would be concentrated on shortening rather than preventing patient stays on alternate care. Similar results were previously reported from a study of the impact of geriatric consultation on prolonged stays and bed blocking by elderly patients in acute hospital services in Edinburgh.[7]

The need for acute hospitals to address the physical, social, and mental problems of the hospitalized elderly, which need has been recognized for some years in Great Britain,[12] is becoming increasingly apparent in the United States.[13,14] Bed blocking or back-up in hospital is a particularly conspicuous and costly manifestation of this problem. The provision of multidisciplinary geriatric consultations on such patients early in their stays in acute medical and surgical services is a strategy that may prove to be valuable from both patient-care and fiscal perspectives as acute hospitals adapt to the DRG mode of reimbursement.[15] Such consultation services may, as in Monroe County, be expected to reduce the problem of prolonged hospital stays by catalyzing the prompt use of appropriate hospital-based and community-based services. The success of such teams will be determined partly by the availability of supportive services and partly by the attitudes and skills that the consulting team members and other hospital staff members bring to the care of elderly patients. Recent efforts to increase supportive services for care of the hospitalized elderly[16] and to educate health professionals in geriatrics and gerontology,[17] when brought to fruition, should contribute to producing a hospital environment conducive to effective accomplishment of the geriatric consultative strategy.

Even with successful implementation of such strategies, however, the capacity to meet the long-term–care needs of the hospitalized elderly will still be limited by certain structural and financial barriers. In this regard, this project documented a sizable number of situations in which a desirable patient-care recommendation could not be carried out because of lack of availability of or access to certain services within the prevailing health-care system. With modifications in administrative and professional practices, it should be possible to overcome many of these barriers.

This project serves to underscore, from direct experience, the broad agendas that have recently been published delineating barriers to appropriate care of the aged and national health policy options for overcoming them.[1,15]

Postscript: Since completion of this demonstration project, several of the participating hospitals have formed planning committees to develop more permanent incorporation of geriatric assessment and consultation into their acute medical and surgical services.

Acknowledgments

This project was supported by the Rochester Area Hospitals Corporation and involved the following hospitals in Monroe County: Genesee, Highland, Monroe Community, Park Ridge, Rochester General, and Strong Memorial. The authors acknowledge with appreciation the contributions of the following members of the hospitals' geriatric teams: Lynn Avery, BA; Diane Ball, BA; Jeanne Bishop, MD; Patricia Bomba, MD; Marie Bresson, RN; Wendy Chavin, RN; Katie Craig-Kuhn, RN; Zsolt DePapp, MD; Kathy Disney, MSW; Martha Fortune, RN, MS; Annemarie Groth-Juncker, MD; Anthony Izzo, MD; Vito Laglia, MD; Noreen Mayer, RN; Lisa Off, AS; Bonnie Riddle, RN; Harriet Seigle, RN, MS; Amy Sherman, BA; Sandy Sorrentino, MD; Joseph Stankaitis, MD; Barbara Stark, BA; Alan Sturm, RN; Naomi Title, MSW; Elizabeth Williams, MSW; and Mark Williams, MD. The authors are also grateful for the overall coordination of Patricia Samuelson, BS.

References

1. Somers AR. Long-term care for the elderly and disabled: a new health priority. N Engl J Med 307:221, 1982.
2. Acheson ED. The impending crisis of old age: a challenge to ingenuity. Lancet ii:592, 1982.
3. Manber M. Hospital backlog. Med World News 63, 1980.
4. Markson EW, Steel K, Kane E. Administratively necessary days: more than an administrative problem. Gerontologist 23:486, 1983.
5. Campion EW, Bang A, May MI. Why acute-care hospitals must undertake long-term care. N Engl J Med 308:71, 1983.
6. Boucher IA, Williamson J. The elderly patient in the acute hospital sector. Health Bull 40:179, 1982.
7. Burley LE, Currie CT, Smith RG, Williamson J. Contribution from geriatric medicine within acute medical wards. Br Med J 2:90, 1979.
8. Block JA, Reigenstriet DI, Leonard J. Hospital experimental payments program: it's working in Rochester. Hosp Financial Management, September 1981, p. 10.
9. Berg RL, Browning F, Hill J, Wenkert W. Assessing the health care needs of the aged. Health Serv Res 36, 1970.
10. Genesee Regional Health Planning Council. 1974–75 Bed Study. Rochester, NY, 1975.
11. Rochester Area Hospitals Corporation. Report of the Long-term Care Task Force to the Administration Committee. Rochester, NY, 1981.
12. Brocklehurst JC. The evolution of geriatric medicine. J Am Geriatr Soc 26:433, 1978.
13. Warshaw G, Moore JT, Friedman W, et al. Functional disability in the hospitalized elderly. JAMA 248:847, 1982.
14. Tobis JS. The hospitalized elderly. JAMA 248:874, 1982.
15. Brody SJ, Mangel JS. DRG—The second revolution in health care for the elderly. J Am Geriatr Soc 32:676, 1984.
16. Brody SJ, Persily NA. Hospitals and the Aged. Rockville, MD: Aspen Systems, 1984.
17. Panneton PE, Moritsugu FP, Miller AM. Training health professionals in the care of the elderly. J Am Geriatr Soc 30:144, 1982.
18. Eisdorfer C. Care of the aged: the barriers of traditions. Ann Intern Med 94:256, 1981.

[From VA Practitioner, November 1985]

James L. Fozard, PhD
Thomas Tillman
John H. Mather, MD
Office of Geriatrics and Extended Care
VACO, WASHINGTON, DC

VA leadership in the development of Geriatric Evaluation Units

With assistance from Central Office, an increasing number of VA hospitals have established geriatric evaluation units. In these settings, interdisciplinary teams evaluate and treat the medical and psychiatric problems of older patients, enabling many patients to remain at home rather than to require hospital or nursing home care.

Although many people enjoy a healthy and active life after age 65, the degenerative processes associated with aging leave the older person more susceptible to certain diseases and more prone to develop age-specific complications. Degenerative changes in the tissues and organ systems of the elderly also can plague them with a host of chronic illnesses that occur simultaneously. In such situations, an interdisciplinary team approach to health care can adequately address the diverse problems inherent in caring for older patients. This approach is marked by a high level of interaction among the various disciplines represented on the team. Team members, who frequently exchange information about each patient's assessment status, treatment plan, and response to treatment, share a common goal and coordinate their activities to achieve that goal.

A Geriatric Evaluation Unit (GEU) may be defined as an inpatient or outpatient setting in which an interdisciplinary health care team performs a multidimensional assessment of the medical, functional, psychological, and

socioeconomic status of older patients. Traditional medical diagnosis is only one of the components of this comprehensive activity. In an inpatient setting, this assessment may be confined to a group of dedicated beds on an acute care or intermediate care ward of the hospital. An interdisciplinary team also may perform comprehensive assessments of geriatric patients on a consultation basis as either an extension of the activities conducted on a dedicated bed unit or independent of such a unit. In an outpatient setting, a GEU can provide evaluation of patients on an ambulatory care basis or can provide follow-up assessment and care for patients discharged from the hospital.

The comprehensive assessment performed on a GEU is valuable because it may identify hidden disabling conditions and may better manage previously detected problems, which, if left untreated or improperly treated, would compromise a patient's optimal recovery. It also helps to identify the least intensive level of care by better matching available services with patient needs. In addition to providing improved care for older patients and improved utilization of long-term care services, a GEU provides an excellent setting for geriatric training, education, and research.

Development of comprehensive geriatric assessment

The concept of comprehensive geriatric evaluation first was developed in Great Britain during the 1930s, largely by geriatrics pioneer Marjory Warren, who found that many of the chronically ill older patients at a large London infirmary were neglected and had disabling conditions that had been poorly assessed. Through systematic evaluation and appropriate treatment, Warren was able to discharge many patients previously thought to be beyond help. This experience prompted her to advocate the establishment in hospitals of special geriatric units to assess and treat chronically ill elderly patients rather than routinely transfer them to long-term care homes. The care of these patients, according to Warren, should be undertaken by an interdisciplinary team that involves personnel in medicine, nursing, social work, and rehabilitation therapy.[1]

Programs for comprehensive geriatric evaluation now characterize the health care systems of Britain and much of Western Europe and have been effective in diverting many older people from institutional forms of care, allowing them to remain in their own homes with appropriate community services.[2] In the United States, where such programs have been developed relatively recently, the VA has become their primary proponent.

Organization of geriatric evaluation activities

Published studies identify two groups of patients for whom geriatric assessment is most useful. The first consists of elderly persons who live at home but who are candidates for placement in a nursing home or in a chronic care hospital. Collective medical and psychiatric problems may or may not constitute a sufficient basis for such individuals to be institutionalized. A review of 16 North American geriatric evaluation programs found that four of the 16 programs focused on this group.[3] An earlier study of such a program showed that as a result of geriatric evaluation of 315 chronically ill elderly persons referred for possible placement in a nursing home, only 35% were found to need nursing home care and 22% were able to remain at home.[4] Researchers concluded that no elderly person who lives at home should be placed in a nursing home without such a referral.

Patient selection is perhaps the most critical aspect of geriatric evaluation, playing a key role in defining the assessment procedures, the purpose of the evaluation, and the organization of the evaluation unit.

The second and smaller group of patients for whom geriatric evaluation is useful

consists of individuals who are referred from acute medical and surgical wards for further evaluation. In general, these patients have acute or surgical complications or have preexisting medical problems that compromise their recovery from the acute illness that was the primary reason for their hospitalization. Their recovery often requires intensive medical and psychosocial intervention compared to the treatment required by other older patients who do not have complicating secondary medical problems and whose recovery from the illness that caused their hospitalization is normal. Of the 16 GEUs described in the review of such programs, the inpatient unit in an acute general hospital was the predominant model.[3]

This second group of patients is of particular interest to the VA because most of the referrals for long-term care in hospitals or nursing homes come from hospitals rather than from communities. Estimates of the number of community-dwelling candidates for institutional placement are hard to make, however, because the availability of evaluation is so uneven across the country. For hospital patients, an estimate of need for hospital-based evaluation was developed at a conference on GEUs conducted in September 1981 by the VA Office of Geriatrics and Extended Care.

The potential target group for geriatric evaluation was estimated to constitute about 15%-35% of hospital discharges of patients 65 years of age and older. More than half (55%) would not require assessment, while another 10%-15% would require further treatment in the acute ward or unit. More recently, Laurence Rubenstein, MD, at the VAMC in Sepulveda, California, has estimated that the percentage of patients suitable for geriatric evaluation amounts to only about 10% of the hospital admissions of persons aged 65 and older.

Patient selection is perhaps the most critical aspect of geriatric evaluation, because it plays a key role in defining the assessment procedures, the purpose of the evaluation, and the organization of the evaluation unit. Most of the VA hospitals that have described the activities of their GEUs exclude nursing home residents and patients with terminal illness, advanced stages of dementia or behavioral disturbances, or unstabilized acute medical problems. There are some exceptions, particularly in psychiatric settings in which patients' dementia and behavior problems are evaluated. Also, some settings that have teaching functions accept a wide range of acute problems.

The VA's role in geriatric evaluation

For several reasons, the VA medical system has taken a leadership role in promoting the establishment of GEUs. First, as a hospital-based system of health care, the VA has a large number of patients at risk for long-term institutional care — enough to warrant the operation of GEUs. This number is expected to rise dramatically during the next few decades as World War II veterans swell the ranks of older patients. Second, interest in geriatric educational activities in the VA has encouraged a team approach to geriatric care, which is essential for the successful operation of GEUs. Third, the current Medicare prospective payment system discourages the establishment of such units in the private sector. Fourth, the establishment of Geriatric Research, Education, and Clinical Centers (GRECCs) has stimulated the growth of these units. In fact, the VA's first experiences with GEUs occurred during the 1970s when some of the GRECCs set up GEUs as part of the clinical demonstration activities of their centers. The first GEU at a VA facility was opened in June 1976 by the GRECC at the Little Rock, Arkansas VAMC. Among this unit's findings was the discovery that 184 of the 241 patients transferred to the GEU from acute medical and surgical wards had major psychiatric conditions requiring treatment.[9]

At the VAMC in Sepulveda, California, these demonstration activities developed into a randomized clinical trial of the efficacy of GEUs. This effort constitutes the most comprehensive scientific evaluation of GEUs to date in the United States. Findings from this study reveal significant benefits associated with admission to a GEU. In comparison with a control group, patients in the Sepulveda GEU had a significantly lower mortality rate and discharge rate to nursing homes. They also were more likely to experience improvement in functional status and morale. After a one-year follow-up period, GEU patients had significantly fewer acute

care hospital days, nursing home days, and hospital readmissions than did the control group.[6]

Stimulating program expansion

Formal measures to develop GEUs in the VA system began in 1981, when the assistant chief medical director for geriatrics and extended care instructed the director of the Patient Treatment Service to initiate steps for promoting the GEU concept. A meeting of the directors of functioning GEUs in VA medical centers was held to discuss the scope and scale of existing programs and to formulate some general guidelines for other VAMCs to follow in establishing GEUs. The high degree of consensus among these directors enabled officials at VACO to issue some guidelines in the form of a chief medical director's information letter.[7] This letter, published in February 1983, encouraged medical centers to establish GEUs if their existing resources could be adequately reorganized to meet the task. The goal of these evaluation units was to improve the diagnosis, treatment, and placement of elderly patients. The information letter also recommended how the GEUs should be organized and what functions they should perform. Attached to the letter were brief descriptions of nine operational GEU programs, eight in the VA and one in the private sector.

A clinical trial of the efficacy of geriatric evaluation units found that GEU patients had significantly fewer acute care hospital days, nursing home days, and hospital readmissions than did a control group.

The letter invited interested medical centers to describe either how they planned to set up GEUs or how they operated existing GEUs. Centers that submitted such descriptions then became eligible to send representatives to a training session on implementing a GEU, which was held at the St. Louis Regional Medical Education Center in August 1983. Twenty-seven medical centers qualified for participation in the training session and subsequently were invited to send representatives. Representatives from two other medical centers, Sepulveda and Durham, served as faculty members at the training session. A second training session held in Sherman Oaks, California, in September 1984 provided training for 14 additional stations. A third training session held in Kansas City, Kansas, in September 1985 provided training for new GEU teams at 15 additional VAMCs. In addition to these efforts, the GRECC at the Sepulveda VAMC sponsored a workshop on GEUs in June 1983 for medical centers in Medical District #26.

In a follow-up to the 1983 training session in St. Louis, 12 of the participating medical centers that subsequently established GEUs were visited during the summer of 1984 by private sector physicians recognized as experts in geriatric evaluation. These physicians consulted with the GEU staff at each medical center and provided VACO with written reports of their consultation visits. A final report synthesizing the findings of all 12 visits was prepared by Robert Kane, MD, of the UCLA School of Medicine, who also devised the protocol used by the physicians in conducting their visits. Similar consultation visits were conducted at five VAMCs in August 1985.

The recently released report *Caring for the Older Veteran* places considerable emphasis on rapidly developing the GEU program in the VA. It sets a goal of having operational GEUs in 70% of VA hospitals by 1990 and in every VA hospital by 2000. By 1 August 1985, the number of operational GEUs in the VA had grown to 45.

Several initiatives have been identified and undertaken by VACO to assure the orderly development of GEUs throughout the VA system. Guidelines regarding the characteristics and goals of GEUs have been provided to medical district planners so that plans for new GEUs can be included in this grassroots planning process used by the VA

to identify its future needs and priorities. In addition, steps have been taken to develop a program guide and suitable quality assurance program. Because of the specialized nature of the team-oriented activities characteristic of GEUs, a patient-oriented management information system is being developed to provide a uniform data base that existing GEU teams can use to plan and manage their programs as well as to enable VACO to monitor the program.

A recently released VA report sets a goal of having operational GEUs in 70% of VA hospitals by 1990 and in every VA hospital by 2000.

Other issues that will require attention as the VA gains experience with GEUs include obtaining an estimate of the costs of operating the program and establishing workload standards and staffing guidelines. The use of DRGs for allocating hospital resources and the planned use of resource utilization groups for allocating resources to extended care programs makes it imperative that the role of GEUs in providing care to elderly veterans be identified in the context of these broader resource allocation issues.

Future of geriatric evaluation

With respect to patterns of patient care, the potential of the geriatric evaluation process is just beginning to be discovered. Up to now, its main use has been as a gatekeeping function for long-term institutional care. The vigorous application, however, of this technique to the care of patients in long-term care and adult day health care settings will have a major effect on geriatric treatment.

Geriatric evaluation also offers an important educational function, especially for interdisciplinary team training. More generally, geriatric evaluation can be expected to have a salutory effect on the broad field of medical certification of disabilities that will extend beyond the current geriatric focus. In a report on a conference on geriatric evaluation, T. Franklin Williams, director of the National Institute on Aging, summarized the value of an interdisciplinary approach to geriatric care: "Such evaluations consider interacting medical, psychologic, social and environmental factors and provide a basis for identifying remediable conditions and for recommending interventions that are rational, beneficial, humane, cost-effective, and preserving of the independence of our elderly citizens."[8]

References

1. M.W. Warren, "Care of the Chronic Aged Sick," *Lancet* 1 (23), 841–843 (1946).
2. C. Nusberg, *Innovative Aging Programs Abroad* (Greenwood Press, Westport, Connecticut, 1984), p. 72.
3. L.Z. Rubenstein, L. Rhee, and R.L. Kane, "The Role of Geriatric Assessment Units in Caring for the Elderly: An Analytic Review," *J. Gerontol.* 37 (5), 513–521 (1982).
4. T.F. Williams et al., "Appropriate Placement of the Chronically Ill and Aged: A Successful Approach by Evaluation," *JAMA* 226, 1332–1335 (1973).
5. K.C. Cheah and O.W. Beard, "Psychiatric Findings in the Population of a Geriatric Evaluation Unit: Implications," *J. Am. Geriatr. Soc.* 28, 153 (1980).
6. L.Z. Rubenstein et al., "Effectiveness of a Geriatric Evaluation Unit," *New Engl. J. Med.* 311, 1664–1670 (1984).
7. *Chief Medical Director's Letter* (10-83-1, Veterans Administration, 2 February 1983).
8. T.F. Williams, "Introduction: NIA Conference on Assessment," *J. Am. Geriatr. Soc.* 31, 636 (1983). □

Senator MIKULSKI. Where is geriatric evaluation available? Let me give you an example, but first I would like to compliment you on the fine delivery of veterans health care services in Maryland. Fort Howard, in particular, receives several gold stars, if that is the appropriate name.

Dr. GRONVALL. We will take them. Thank you.

Senator MIKULSKI. People call me, as a Congresswoman and now as a Senator, as if getting somebody into Fort Howard is a form of patronage. They call me and say, "My husband fought at Iwo Jima, Barb. They tell me that he has Alzheimer's. They would like him at Fort Howard, and I live in Dundalk. We voted for you, all 32 members of my family voted for you. Can't you get Stash in?" We have our appropriate procedures.

Probably one of the largest number of constituent calls I receive in the area of veterans benefit inquiries is for getting people into Fort Howard, and your people are wonderful.

Dr. GRONVALL. Thank you.

Senator MIKULSKI. Having said that, people call me because they are coming in through seven systems. A doctor who says, "Your husband is getting forgetful. I think that you ought to put him in a home." No evaluation.

Someone who is in an acute care facility, other than a vet's, who has had a stroke, has an enormous amount of rehabilitation potential. By the way, your rehabilitation at Fort Howard, particularly in speech difficulties, has been on the cutting edge.

Again, often there is no social service planning in an acute care facility. They tell the wife, "You have to find a place to put him, lady." Their way to find it is to call Senator Mikulski or the VFW service organizations.

Could you tell me how some of this would then work? You see, we are getting calls.

Dr. GRONVALL. You see, Senator Mikulski, you are making the point that I was emphasizing, that one of the major problems of private sector medicine is compartmentalization of hospitals, nursing homes, rehabilitation centers, in a way that doesn't exist in the VA.

We, I think, do much better when a veteran comes to us for care. Because we have an integrated system with all of those kinds of care under single management, it is much easier for us to plan.

ACCESSING VA CARE

Senator MIKULSKI. But how does it work at the street level, Doctor? Who calls what, and what happens to them when they do?

Dr. GRONVALL. Basically, any veteran who comes to us with a medical problem is assessed, primarily for medical need, and then for eligibility for care. If, on both of those measures, the veteran is eligible and we can provide the care that is needed, that is a single entry into the entire VA system. That individual veteran will have care planned and delivered in whatever way is necessary.

Senator MIKULSKI. Where you are delivering long-term care, such as at Fort Howard, do you have geriatric evaluation there, so when a family thinks that they might need a nursing home, or they are not sure, you do the evaluation for the appropriate placement in a continuum?

Dr. GRONVALL. I believe that the answer is "Yes." I should check specifically about Fort Howard. At this point we do not have formally structured geriatric evaluation units in every one of our medical centers, but we are expanding them with that as an objective. That function goes on in every one of our medical centers.

Again, any veteran, who comes to us at any level—a clinic, a hospital, a nursing home—and applies for care, gets into the system. We conduct that evaluation and develop a treatment plan on that basis.

Senator MIKULSKI. Do you mandate a geriatric evaluation before you would put someone in a nursing home bed?

Dr. GRONVALL. We mandate a medical assessment and a medical judgment that the individual needs nursing home care. In most places, with a structured multidiscipline team, geriatric evaluation is the basis of doing that.

Senator MIKULSKI. Thank you.

Mr. Chairman, I know my time is up, but I think that this is probably one of the real policy areas that would absorb a tremendous amount of our VA budget in the future. I thank the chairman for being indulgent.

PRODUCTIVITY—INSURANCE

Senator PROXMIRE. Thank you very much.

General, your justifications point out that your Insurance Service is one of the VA's pilot functions under the President's productivity improvement program. The Service has set a goal of increasing productivity 20 percent by 1992.

On the other hand, your justification indicates that you plan to increase insurance program staffing from 483 currently to 513 in fiscal year 1988 in the face of a decreasing, I stress, a decreasing Insurance Service workload. Fewer cases and more staff appears to me to be a productivity decrease, not an improvement.

Why are you projecting a 20-percent increase in productivity when the facts point in the opposite direction?

Mr. VOGEL. Mr. Chairman, on October 1 we will begin to consolidate our present two insurance centers into one. In order to continue to provide good policyholder service, we will actually overstaff for a period of time, positions in Philadelphia, which will be the single insurance center. We will bring the work in from St. Paul, and then we will begin to phase down. But so as to not have deteriorated service, we will need the staff trained. Untrained personnel would be less productive than their trained counterparts.

Senator PROXMIRE. On page 21–23 of your justification you indicate that the consolidation of the St. Paul Insurance Center into the Philadelphia Insurance Center will require an additional 49 positions in or-

der to cover the training requirements for new employees. I find it difficult to believe that you need a 10-percent increase in your staff because of a consolidation. Can you explain that in more detail?

[The information follows:]

INSURANCE CONSOLIDATION STAFFING

In calculating the staffing costs associated with the consolidation, it was determined that it would not be cost beneficial to relocate lower graded employees from St. Paul to Philadelphia. Therefore, new employees will have to be hired and trained in Philadelphia to assume the lower graded positions, such as policy service technicians. The 18-month phased consolidation plan was devised to minimize the disruption of service to policyholders during the consolidation period. In keeping with this goal, the new employees will be hired and trained in Philadelphia prior to the actual transfer of work from St. Paul. We believe that it is of prime importance to maintain the current level of quality service to our insureds during the transition period. Although there are certain one-time costs associated with the consolidation, this initiative will result in significant annual savings by fiscal year 1990.

Mr. VOGEL. At the same time that we are consolidating, Mr. Chairman, we are putting into place some new technological systems that will require additional training of personnel and the supervisory people to conduct such training.

Senator PROXMIRE. Did you say "new technology"?

Mr. VOGEL. We have new remittance processing equipment. We are now processing the 9 million per annum remittances that we receive. That is now in place and we have had to devote efforts to train the people.

Senator PROXMIRE. But that will not only improve the quality of the care, but also the efficiency; is that right? In other words, you will be able to do a better job?

Mr. VOGEL. Yes; we have procured modern, up-to-date remittance processing equipment such as you would find if you visited Travelers or some other major insurance operation.

Senator PROXMIRE. I would assume that we would be seeing some major staff reductions in future fiscal years as your training requirements evaporate. Should we anticipate the elimination of those 49 training requirement slots for fiscal year 1989?

Mr. VOGEL. Yes, sir.

General TURNAGE. Mr. Chairman, this has been an evolutionary process. At one time, there were 14 different processing centers to accommodate the insurance function. As automation came along, and with the productivity in the system, it has been reduced to where now we have the two.

In the continuing process, perhaps you missed that particular point, which was made in my opening remarks. We expect that by 1989, when the consolidation has been completed we will be achieving about $1.7 million savings a year.

It is only starting October 1 and for fiscal year 1988 that we expect the increase based on the requirements that were suggested by Mr. Vogel.

Senator PROXMIRE. I am not sure of the necessity for the increase. Why can't you cover the training needs by temporary reassignment of the current VA staff?

General TURNAGE. We are not sure, and we have no way of knowing precisely how many people would, in effect, accept a transfer from Minneapolis to Philadelphia. It would be the necessity of having to take new people and training them into the system.

CONGRESSIONAL CONCERN—INSURANCE CONSOLIDATION

Senator PROXMIRE. Senators Boschwitz and Durenberger have written me to express their concern over the St. Paul-Philadelphia consolidation. Their letter points out that the General Accounting Office is studying the matter, but, "The VA has twice revised its original cost-benefit analysis, which has delayed the conclusion of the study." Has the GAO study been completed and, if so, what was their conclusion?

Mr. VOGEL. Senator Proxmire, the GAO study has been completed, but we don't even have a draft of the report yet. We have met with the audit managers. On two previous occasions, the General Accounting Office themselves recommended the consolidation of insurance. It is essentially a mail order business with a declining number of insureds. We virtually write no new insurance.

We expect that the results this time will be the same as the previous two times. We have met with that staff on numerous occasions. I think that it is well to point out that they have now been studying our study and doing their own for some 9 months. I met as recently as a month ago with the audit managers. We do not expect them to come to any conclusion other than that consolidation would effect economies and save the government money with no decrease in service.

I don't think that there is any question that there is significant, up to multimillion dollar, savings that we will achieve.

Senator PROXMIRE. Why did you revise your cost-benefit analysis twice?

Mr. VOGEL. Part of the change was made on the basis of how many employees would need translocation services and what would be the attrition rate. In the middle of that process we put in a new remittance processing system. That increased our capacity to handle premium remittances at the same time that we were studying the consolidation.

The GAO and our folks don't have marked differences in the number that we began with, which we reviewed and used later on.

Senator PROXMIRE. The two Senators from Minnesota, the Minnesota Twins, also question the benefit-cost ratio. For example, they point out that the most recent figures provided by the VA project only a 1.04 benefit-cost ratio over 5 years, and the net benefits have been estimated at $3.97 million, $3.06 million, and most recently $2.36 million.

In view of your own internal uncertainty as to the cost effectiveness of the consolidation, why wouldn't it make sense to await the outcome of the GAO study before deciding to proceed?

Mr. VOGEL. Our discussions with the GAO have indicated to us that when they do publish their final report of our savings, the savings will be $0.5 million. There are definitely savings.

The point is that we think we can do that and still provide at least the same good level of service, or perhaps even improve upon it. We can look at this and study it for years, and what we are doing is expending more resources than we think we need to to provide this valuable service.

DECENTRALIZED HOSPITAL COMPUTER PROGRAM

Senator PROXMIRE. According to the table on page 4–8 of your justification, you plan to spend almost $120 million on medical automated data processing activities in the coming fiscal year. How much of this total request would be spent on decentralized hospital computer program [DHCP] procurements?

Dr. GRONVALL. Mr. Chairman, I would need assistance, I think, from David Van Hooser to subdivide that expenditure.

Basically, the automation of information handling that is going on in virtually all of our hospitals is the decentralized hospital computer program. We have three pilot tests going on at Philadelphia, Saginaw, and Big Spring utilizing commercially contracted automated data handling [IHS].

Mr. Van Hooser, could you respond to the question?

Mr. VAN HOOSER. Yes, sir.

Of the $102 million for medical care, there is $62 million allocated for DHCP and $8.6 million for the IHS project.

Senator PROXMIRE. As I indicated in my opening statement, the decentralized hospital computer program system has an estimated life cycle cost of about $1.2 billion. In your request to Congress you are considering alternatives to this system through the testing of an integrated hospital system in three hospitals.

We understand that you may be about to spend $35 million made available in the fiscal year 1987 appropriations bill to buy hardware for the DHCP program, despite the fact that the test of an alternative approach will not be completed until next September. Is that a fact and, if so, why are you jumping the gun?

General TURNAGE. May I make a prefacing remark, Mr. Chairman, before the specific question is answered? I think I understand the sensitivity of this particular issue and I would like to put it in a context that may be helpful to the committee.

One of my major goals as Administrator of Veterans Affairs is to improve the management and delivery of health care services to all the veterans. The use of computers at the VA to me is a means to this end, but it is not an end as of itself.

In our medical centers we are using computers to improve the quality and timeliness of the health care delivery. At the same time, we are using computers to improve the productivity of our direct health care personnel; that is, for doctors, nurses, and medical technicians.

Through the use of the systems currently in place and proposed in our budget for the Department of Medicine and Surgery we will provide health care professionals with the information they need to manage the DRG and resource allocation environments of today. The planned management improvements will improve the effectiveness and productivity of the VA health care delivery system.

My objective is to improve the quality, the timeliness, and the cost effectiveness of the health care system. The computer systems operated and proposed by the Department of Medicine and Surgery will enable them to meet their objectives faster, and that is critical; at a lower cost, and we think that that is critical; than any other option available within the parameters prescribed. We welcome a full and frank discussion of this with the committee.

Senator PROXMIRE. Go right ahead.

BOOZ-ALLEN & HAMILTON COMPARISON OF DHCP AND IHS

Dr. GRONVALL. Senator Proxmire, I would describe a different flow of events than your question suggests.

Senator PROXMIRE. The question relates to jumping the gun.

Dr. GRONVALL. Yes; we have just completed a major review of the comparison of the DHCP and IHS systems. That review was an independent one conducted by Booze-Allen & Hamilton. It is, of course, a complicated matter to compare in an apples to apples way two different approaches, but their conclusion was a very striking one; namely, that while each system can work, and each system has pluses and minuses, the cost differential, the specific question you asked, was strikingly different. The adjusted life cycle cost of DHCP was some $700 million and the cost of the IHS, if extended to the entire VA, would be some $1.5 billion on a comparable basis.

In our view, we are not jumping the gun. The proposal that is in our budget is a projection of planned continued evolution of the DHCP system, which has been in development in our hospitals for the past 4-plus years.

Senator PROXMIRE. My time is up.

Senator Mikulski.

MEDICAL CARE RESCISSION

Senator MIKULSKI. I want to come back now to the delivery of health care, as obviously Senator Proxmire has picked up on. I would like to discuss the President's proposed budget and the rescission of $75 million from the current fiscal year 1987 VA medical services budget.

In an AMA news journal in February 1987, they talk about the devastating effect that this could have on the delivery of health care, and I would like your reaction. According to the AMA news account, it says that the VA current fiscal medical services budget, with the rescission, would mean a full-time employment reduction of 1,400 health-related workers, and additional employment proposed budget cuts could result in a systemwide net loss of close to 3,800 health care workers, and that your hospital administrators around the country fear that they

won't have hospitals left, meaning the people that run them. You know that it is more than just the doctors, that it is the nurses, the x-ray technicians, and all those things that go into it.

A particular concern is from Dr. Goldsmith, for example, in San Francisco, who talks about the crushing impact of AIDS that Senator D'Amato raised, because it seems that it is in the San Francisco area, and in large urban areas like New York, that AIDS is being caught through drug use and it is having a real impact on them.

My question is, What do you think is going to happen because of this rescission? Will it really totally eviscerate the delivery of health care in the acute care facilities, or is this an exaggerated claim?

Dr. GRONVALL. Senator Mikulski, I am very familiar with the article that you refer to because I have read it, and I have also talked with the individuals whose comments are referenced in that article.

Let me summarize the President's budget proposal, as the 1988 budget request was developed and considering the need for the Veterans Administration to shoulder its portion of the deficit reduction burden, a decision was made, after careful review, that based on our experience since last July 1, something like 2.4 percent of the veterans applying for health care fall into category C.

The new law that went into effect defines category C veterans as those having an income above a certain threshold, and the presumption in the President's budget is that those veterans do have the financial means available to seek care in the private sector.

Our budget proposal translated that judgment into the projected rescission of $75 million and 1,400 FTEE that we believe could be accomplished in the remaining 5 months of this year, and the additional 2,350 FTEE reduction and $92.2 million reduction in 1988. That reduction of staff and support equates to about 2.1 percent of our operating budget and staff.

It is my judgment that if, in fact, that proposal was accepted by the Congress, and we were asked to implement it, a 2.1-percent reduction would not decimate or gut the delivery of health care. My absolute commitment would require two things.

First, to ensure that we reduced the quantity of care being delivered utilizing the eligibility criteria in such a way that we protect the quality of what we are delivering. We would deliver less care, but we would preserve the quality.

Second, in any individual instance where a category C veteran came to one of our medical centers and that medical center did, in fact, have the resources, the bed, or the program necessary, they would continue to provide such care.

So the budget does not propose elimination of all care to category C veterans. This reduction is a budget reduction calculation rather than a change in the application of the eligibility criteria and our willingness to care for category C veterans.

Senator MIKULSKI. Doctor, I appreciate your trying to shoulder the budget cuts. I think we are all facing that. What you are saying is that

by these new Schedule C eligibility requirements, you will be able to reduce your capacity or your infrastructure.

Dr. GRONVALL. That is absolutely correct. We would reduce our total capacity for delivering health care by some 2.1 percent and take appropriate steps to preserve the quality of the care that we are delivering. Again, the presumption is that the individuals who could not receive care in the VA do have an income level that should allow them to seek health care in the private sector.

MEANS TESTING

Senator MIKULSKI. I would like to talk about this because means testing is a new approach for the Veterans Administration. As I understand, Schedule C would be for those people who do not have service-connected disabilities and whose income is below $20,000; is that it?

Dr. GRONVALL. Category C is where the income is above $20,000—$25,000. A non-service-connected veteran with an income level of above a threshold, and the threshold is not uniform for every individual because it takes into account the number of dependents, et cetera. Category C are the veterans whose income is above that threshold level.

Senator MIKULSKI. You are talking about reducing category C.

Dr. GRONVALL. Correct again, on the assumption that since their income is above that level.

ELIGIBILITY CRITERIA

Senator MIKULSKI. I want to talk about this whole issue of $20,000. I am talking about your eligibility criteria and how this varies from individual to individual.

Is this $20,000 earned income? Do you factor out for dependents? Do you take in assets? Does a veteran have to sell his home? Does a veteran have to sell his car? Does a veteran have to give up other assets that he might have, his father's gold watch?

Dr. GRONVALL. The answer is "No" to all of those questions. The eligibility criteria are established in law. The adjudication in the VA, or the judgment as to which of those categories a veteran falls into, again, is based on a previously developed adjudication process that was put in place for the pension adjudication program of the Veterans Administration.

I, myself, could not answer in detail every fact of what is considered and not considered, but basically a veteran is not required to dispose of such assets as a home or a car. Factors are taken into account that relate to the ability of the veteran to generate income. For example, in cases where farmers own land, that factor is taken into account.

I think those who have reviewed the adjudication system would view it to be a comprehensive assessment of net worth and income potential, and as a result of that, a judgment is made as to whether the veteran falls into category A, which is by law defined as poor; category B, which is an intermediate category; and category C, in which income is above that level.

General TURNAGE. Senator Mikulski, may I please make another statement with regard to this fact?

Last year, the Congress passed a law which incorporated what you have called the means test. When it did, in the establishment of the three categories, category A are the people who have the highest priority for medical care.

That includes people who have service-connected disabilities. It includes prisoners of war, people who were exposed to agent orange, or allege that they were, people who were exposed to ionizing radiation, people from World War I, and a myriad of other people. Importantly, it also incorporated every individual in the system that made $15,000 or less, regardless of whether or not his problem is service connected which, in effect, talks about the people who are indigent.

Category B includes individuals earning between $15,000 and $20,000. Category C would be those who are single and earned $20,000, if he had one or more dependents, the level would be $25,000 or over.

We started keeping the data relating to the different categories on July 1 of last year. At that time, only 2.4 percent of the whole fell into category C. All the rest have been getting the care that you suggest. It was that determination, based on the fact that priority should be given to those who had service-connected disabilities, as well as the means problem. Those non-service-connected, who otherwise fell above that threshold, might look to the private sector for that care.

The 2.4 percent, when that data came out, was used all out of context, in my judgment. The language was intemperate and the kind of comments that were related in this document have no basis in fact.

The fact was that there were not massive cuts as they suggest. Our budget request for 1988 asked for $414 million more for medical care, and that is precisely the way it is going into it. So the interpretation of it depends on whoever's motive wants to be satisfied.

Senator MIKULSKI. Thank you, Mr. Chairman.

Senator PROXMIRE. Thank you, Senator Mikulski.

Senator Grassley.

EFFECT OF RESCISSION ON CATEGORIES A AND B

Senator GRASSLEY. Could I ask a follow-on question of what the Senator from Maryland just asked about, and that is whether or not this change in category C, or the elimination of category C, is going to have any effect on categories A and B?

As a subsidiary effect of doing away with category C, or not tending to the needs of those veterans, is that going to have an effect on those in categories A and B?

Dr. GRONVALL. Senator Grassley, my answer to that would be that we would plan the changes in our budget and our operation with the intent that there be no impact on category B care.

The category A veterans, which compose 94-plus percent of the veterans who come to us for care, have a mandatory eligibility for hospital care. So there is no question involved there.

Our budget proposes full funding for the support level necessary to provide care for category B. Our intent would be that the reduced quantity of care we would give would come from the veterans applying to us in category C.

Again, I think, it is important to reemphasize that our absolute commitment is that wherever a category C veteran applies, if the individual medical center has the resources available for the care to be provided, and the veteran agrees to pay a copayment, care would be provided.

Senator GRASSLEY. As a follow-on to my question, is there any way in which, because of doing away with class C, that there might not be some space available for category A?

Dr. GRONVALL. No, sir.

INSTITUTIONAL VERSUS NONINSTITUTIONAL CARE

Senator GRASSLEY. Again following on what the Senator from Maryland was asking about the institutional versus the noninstitutional care, I would like to have you say for me in a concrete way how you could divide the resources into institutional care and noninstitutional alternatives so that we know the resources going into each. Could you do that for us?

Dr. GRONVALL. Yes; I would be pleased to do that for the record. I don't have those figures at my fingertips but I could supply that in detail and I would be pleased to do so.

Senator GRASSLEY. Fine.

[The information follows:]

INSTITUTIONAL VERSUS NONINSTITUTIONAL CARE

The following table is provided for noninstitutional care programs in the Office of Geriatrics and Extended Care, adult day health care [ADHC], hospital-based home care [HBHC], and community residential care [CRC]:

NONINSTITUTIONAL CARE

[In thousands of dollars]

	1986	1987	1988
ADHC (VA):			
Cost	$2,105	$3,876	$4,064
Contract		4,000	4,000
HBHC	16,616	21,506	23,305
CRC	10,969	11,629	12,225

The growth in the institutional programs for geriatrics and extended care is shown in the following table which includes the VA, community nursing homes [CNH], and the state nursing homes [SNH], as well as the VA domiciliary [VA Dom] and the state domiciliary [S. Dom] programs:

INSTITUTIONAL

[In thousands of dollars]

	1986	1987	1988
VANC	$452,397	$499,679	$573,205
VA Dom	99,270	110,137	118,812
CNH	301,844	322,800	348,504
SNH	51,307	55,366	60,200
S. Dom	13,620	13,008	13,111

Senator GRASSLEY. Does the VA plan in any way to be investing more in the development of noninstitutional alternatives to meet the extended care needs of the older veterans; that is, beyond the figures that you will be giving us, and can you give us any concrete sense of the timetable on that, if you are anticipating it?

Dr. GRONVALL. Again, sir, the answer is "Yes," we have plans that are projected in the budget for expanding development of a number of noninstitutional care programs. The figures that I will supply to you will display by program the projected growth of each of those programs over the coming years. We would be pleased to supply that.

SENATE VETERANS AFFAIRS COMMITTEE RECOMMENDATIONS

Senator GRASSLEY. I have been told that the Veterans Affairs Committee, though I don't serve on that committee, is proposing to the Budget Committee about $22 million for an extended care alternatives initiative. Many of us are familiar with the problems of older Americans and feel that it is important to reduce the emphasis upon institutional care which is so much a feature of our long-term care system.

What will the Administration's position on that proposal be, and I specifically would like to know if you are going to oppose it?

Dr. GRONVALL. I believe, sir, that will have to be recommended by the Administrator and be an executive branch administration decision.

Senator GRASSLEY. You are going to be making recommendations to OMB on that?

Dr. GRONVALL. I want to be certain that I understand the context of your question. The report you referred to is a views and estimates report of the House Veterans Affairs Committee that goes to the House Budget Committee.

Senator GRASSLEY. No; it is on the Senate side. It is a Senate recommendation.

Dr. GRONVALL. My understanding is that the Veterans Administration has not asked for a formal comment on or recommendation for action on those reports. Those are utilized by the Budget Committees in the process of developing the first concurrent resolution on the budget as a governmentwide activity.

Senator GRASSLEY. Technically, you are correct, but it is only a matter of time. I think that when this comes from the Veterans Affairs Committee, you have to consider it a real issue that you are going to have to be dealing with.

Maybe I shouldn't push the point now, but I guess I would ask my question based on the assumption that the Veterans Affairs Committee is serious about it, and even if the Budget Committee would not consider it as part of its program, somewhere along the way we are going to be dealing with it on the floor of the Senate. There is going to be a position by the administration at that time, and I would like to know what that position is way ahead of time.

Dr. GRONVALL. I assume, sir, that we would be asking for a recommendation if the issue is included in the proposed appropriation.

Senator GRASSLEY. Let's leave it this way. Senator Grassley is asking you for your position on that. Would you submit your position in writing to me?

Dr. GRONVALL. Yes, sir.

General TURNAGE. First, I would like to be in personal contact with you in regard to this, because I must have clarity as to what specifically you need here. Please rest assured that we will be responsive to you. I am not sure that I understand the full thrust of your question.

Senator GRASSLEY. We will submit it in writing, then.

[The information follows:]

EXTENDED CARE RECOMMENDATIONS

The Senate Committee on Veterans Affairs recommended an appropriation increase of $21.8 million and 610 FTEE for substantial expansions of extended care and geriatric care programs. The list of programs they recommend for expansion are: Hospital-based home care; adult day health care; community residential care; geriatric evaluation units; geriatric research, education, and clinical centers; respite care; and hospice programs.

The agency also recognizes the need for these extended care alternatives. Although progress has and will continue to be made in expanding these alternative programs, the agency cannot support additional funding for these efforts because of continuing budget deficits.

CATEGORY C WORKLOAD

Senator GRASSLEY. Will your proposal to cease making VA health services available to veterans with incomes under $20,000 have an effect on the extended care services that you offer now to older veterans?

Dr. GRONVALL. No, sir.

Senator GRASSLEY. More specifically, how many older veterans now receiving extended care services——

General TURNAGE. Your last question, either I misinterpreted it or there is an error here, we don't curtail any medical services to people with incomes under $20,000, nor is it proposed.

Senator GRASSLEY. Would you wait until I confer with staff?

I stated it wrong, it is over $20,000.

General TURNAGE. That is the category C veterans, sir.

Senator GRASSLEY. Yes.

General TURNAGE. It is $20,000 in the event that he is single and it is $25,000 in the event he has one dependent or more. What we suggested in the proposal is that in those instances where there are resources and space available in the particular medical center or outpatient clinic where he applied and asked for assistance, if those two qualities were there, we would still provide the service.

Dr. GRONVALL. Let me clarify, Senator Grassley, if I could, the basis of the proposal for both the rescission and the elimination of the funding. The category C as projected in the budget does propose a reduction in all of the kinds of care delivered. In that context, the answer would be, "Yes," some of that reduction, if it occurs, would come from nursing home care or extended care that would be made available to older veterans. The answer is "Yes."

Senator GRASSLEY. Then can you tell me how many older veterans would be so affected?

Dr. GRONVALL. I have in front of me the gross number of both hospital treatments and outpatient visits that would be reduced. In 1987, the rescission would require a reduction of some 15,000 patients treated in our hospitals, and some 212,000 outpatients. In 1988, it would be a reduction of some 33,000 inpatients treated, and some 463,000 outpatient visits. I would have to supply for the record the additional more detailed figures for other forms of care.

[The information follows:]

CATEGORY C AGED VETERANS

The chart below provides the estimated workload reduction by fiscal year 1988 associated with the elimination of funding for category C veterans. In addition, the aged veteran component of this workload reduction is provided. This estimate is based upon the percent of veterans age 65 and over to total veterans that are presently being treated within the various activities of medical care. It is assumed that this percentage would also be valid for category C veterans.

CATEGORY C VETERAN WORKLOAD REDUCTION—TOTAL THROUGH FISCAL YEAR 1988

Activity of care	Total	Aged component
VA hospital patients treated	32,598	10,873
VA nursing patients treated	598	394
Community nursing patients treated	1,036	675
Outpatient staff visits (000)	460	120

USE OF PHYSICIAN ASSISTANTS

Senator GRASSLEY. Can I ask one more question, I know that my 10 minutes are up, and then I will submit all the rest of my questions in writing?

This is on another subject, but I have some more questions along the general line of the older veteran that I wanted to ask about, but I will ask those in writing.

This is in regard to an interest that I have had in getting reimbursement for physician assistants under certain circumstances in other governmental programs. I want to ask about physician assistants in regard to the Veterans Administration.

The Finance Committee and the Congress did pass legislation last year because we felt that physician assistants can help provide cost-effective services to supplement the work of physicians, and we particularly felt that this was important in rural areas.

To what extent does the VA make use of physician assistants within the VA health care system?

Dr. GRONVALL. We do utilize physician assistants. I am unable, from my memory, to give you a specific number. I would prefer to give you that for the record, if I may.

Senator GRASSLEY. That is very appropriate. Thank you very much.

[The information follows:]

The VA employed 691 full time and 24 part time physician assistants as of December 31, 1986.

COMPARISON OF DHCP AND IHS

Senator GRASSLEY. Thank you, Mr. Chairman.

Senator PROXMIRE. Thank you, Senator Grassley.

General, Booz-Allen & Hamilton recently prepared, at your request, a comparison of the DHCP and IHS programs. This report states in the opening pages that there is a very high risk that DHCP will never fully achieve its goals and objectives.

My question is, How can you proceed to purchase the next $35 million worth of DHCP equipment when your own consultant indicates a grave risk that the system won't do the job?

General TURNAGE. If you take that one term out of context, Mr. Chairman, then it gives a certain thrust to the response. On the other hand, we have discussed that precise language with the people who made that determination of high risk versus low risk, and we asked them to define it to us. They defined it to us with complete satisfaction.

On the other hand, when you analyze the entire report, and get down to the bottom line, they said that the DHCP would provide quicker and cheaper that which we needed to accomplish our requirement as opposed to the alternatives that are available to us.

Before I leave this subject, I would like very much to have my Associate Administrator for Management elaborate on that because he is an expert in the field, and he came with all kinds of credentials from the private sector to us here. It is precisely why he is here, to assist with that. I would ask Dave Cox to elaborate on that answer.

Senator PROXMIRE. Go ahead, sir.

Mr. Cox. The reason that we wanted to proceed is that the report specifically said that we needed to make corrections.

The report said that if we didn't make the corrections, the way we were going we would have a risk that was high and chance for a failure, and they identified areas where those corrections should be made. Those same corrections were identified by our Inspector General in his report.

Senator PROXMIRE. Did you cost out the corrections?

Mr. Cox. We have costed out a number of the corrections because they have already been made, and they had to do with such things as the direction and control of the software, maintenance, and things of that nature. The other elements of correction had to do with whether or not we could adequately staff if we determined to go to 24-hour coverage of the computer operations at hospitals. What I indicated, in discussions with your staff——

Senator PROXMIRE. You did not cost those out?

Mr. COX. Let me answer the question in this way, sir. The implications of that, we have boundaries as to the cost.

The answer is, we can supply the necessary manpower within the manpower allocations that we have in the Department of Medicine and Surgery in terms of moving people from job A to job B, but the implications of risk were all addressable, all correctable, and we are taking action on every risk identified by the Inspector General, by the independent consultant, those that were recommended by the House Appropriations Committee.

These adjustments are being made in the management of the overall program. We feel very confident that we can deliver on the schedule that we discussed.

Senator PROXMIRE. Let me follow up with this question. In investigating the conflicting assertions of the VA computer vendors and a variety of lobbyists, my staff has sought an unbiased evaluation of the DHCP system. After all, this is to be the computer system that will underpin the increases in hospital services productivity for the largest health care system in the nation, a national investment in computers and programming of $1.2 billion.

Bill Childs, the editor and publisher of Health Care Computing and Communications magazine, a publication which goes to over 27,000 health care executives in this country, has examined the DHCP system, as well as the products of over 150 vendors to the health care community. He has over 25 years as a professional in the computing field and over 18 years in the health care computing field. Here is what Mr. Childs told my staff, and I quote:

> When last I examined the DHCP, about 15 months ago, I was asked by the VA proponents to write an article about the system. I did not write the article, in large measure because there was little positive I could say about the DHCP. It was a sophomoric attempt at programming, the result of which is a system that is inferior to the commercial products of 6 years ago. I cannot imagine, and certainly would not recommend, that any health care provider build his own ADP system in light of the vast number of commercial vendors who can supply far better products at competitive prices. Keep in mind that the top 20 vendors each supply over $20 million in support to the health care community per year. I cannot conceive of why the Veterans Administration would not seek the best of these commercial products.

In light of what Mr. Childs wrote, how can you defend your decision to proceed with the DHCP system?

Mr. COX. Let me put some perspective on this. First of all, we did go to the private sector to find out what they could offer. We conducted a competitive procurement which resulted in contracts with three vendors—Electronic Data Systems, McDonnell-Douglas, and Scherr Medical System—to provide systems that we could test and evaluate in an actual operating hospital.

Senator PROXMIRE. When did you do that?

Mr. COX. That was done approximately 2½ years ago. We have had them installed for 24 months, and this is the evaluation that was conducted comparing the results of those systems with the results of the DHCP system.

Senator PROXMIRE. Is the evaluation completed?

Mr. Cox. That is the Booz-Allen report, sir, that compared the IHS system with the DHCP system.

Senator PROXMIRE. The evaluation of those systems specifically, I understand, will not be completed until September.

Mr. Cox. Sir, the evaluation comparing those systems was done by Booz-Allen & Hamilton looking at the results of IHS versus DHCP. What is due in September is the report from Arthur Anderson who has been monitoring the implementation of those three contracts.

To come back around, the answer is, "Yes," the health care services that are offered by those vendors and other vendors are very good. The products are quality, the systems are quality, and the support is quality.

You pay a price for that quality that is reflected in the price that we have in the contracts that we negotiated with them and the subsequent amendments and discussions that we had with them on these issues.

We think that we have a good quantification of the price, at least as it relates to certified contract prices that we have with these vendors. Clearly, the services are good.

Our consultant, Booz-Allen & Hamilton, an independent consultant, felt that the quality of the products that we have installed for DHCP could meet our medical care needs and the medical center directors feel that way. Our Chief Medical Director feels that we have a product that can meet the needs of the medical centers, the specifications for which were developed by special interest user groups in the Department of Medicine and Surgery.

For example, for the pharmacy application, the special interest user group will be made up of chiefs of pharmacies from seven of our regions and the specifications will be approved by the Chief of the Pharmacy Department.

We feel that it meets the requirements that way. We feel that we can do it at a lower cost for a number of reasons. The questions that were raised by staff as to whether or not this investment is being optimized, whether or not we are doing the best possible thing given all the constraints in the free market. The answer is, within the constraints provided to us by the Congress, we believe that we are.

In 1982, we had developed alternative approaches to solving these problems. Congress directed us specifically to stop any other attempt at automation that may involve regionalization or centralization, to install the MUMPS computer language into each VA hospital, and direct all programming and personnel and the dollars into that effort. We complied with that. This is a constraint that was laid on us that way.

We were asked to compare a commercial system, and we did that. We reported back that while they were very good, they cost much more money than we currently had at our disposal to do it, and the approach we are taking can meet our requirements.

We stand ready for additional direction, but given those two constraints, the money that we have and can it meet our requirements, and the congressional direction to go specifically to the approach that we have done, we have done that. We have something that we think that can meet our requirements.

DHCP COMPARISON WITH NIH COMPUTER SYSTEMS

Senator PROXMIRE. Let me ask you a specific question along this line. Keeping in mind Mr. Childs' statement, I wonder how the DHCP system compares, for example, with the computer system that is used by the National Institutes of Health's Clinical Center, possibly the most complex hospital operation in the world. Can you provide us with some insight on how these two compare with regard to effectiveness and cost, or how the DHCP system compares with any system in non-VA health care facilities?

Mr. COX. We can provide you with some information, for the record, based on DHCP comparison with non-VA studies that have been done. I don't know whether there has been a specific comparison with NIH or not. I can also provide you, sir, if you would like——

Senator PROXMIRE. If it hasn't been done, would you do your best to see if you can pull that together?

Mr. COX. We will be glad to do that. We had compared the three IHS vendors, which were competitively selected, and those who responded to a competitive procurement on that issue. We have those results to provide.

The second part is that we can state that the systems that we propose to install meet the needs of the VA, independent of what the expert has to say about commercial systems.

Senator PROXMIRE. But you will provide, for the record, a comparison with the National Institutes of Health's Clinical Care Center?

Mr. COX. We have not done a study on that. You would like a study against NIH to compare, for the record?

Senator PROXMIRE. Whatever is necessary to give us the data that we are requesting. You can get together with staff.

[The information follows:]

DHCP COMPARISON WITH NIH COMPUTER SYSTEM

The Agency has surveyed the medical information system of the NIH Clinical Center and determined that the system does not lend itself to a comparison with the DHCP program. The reasons for this stem from the very nature of the facilities where these two information systems operate. The clinical center is a 541-bed research hospital staffed by 1,000 participating physicians that supports the inpatient and outpatient clinical research programs of the ten institutes of the National Institutes of Health. The patient population differs quantitatively from most other hospitals in terms of the types and frequency of diseases treated. Consequently, the information system is geared toward clinical care and research activities, and the users of the system are primarily physicians.

By contrast, the VA medical centers are organized to support acute and long-term care for the Veteran population at 172 hospitals, outpatient clinics, nursing homes, and domiciliaries. The primary focus of DHCP is on automated clinical and administrative support for all of the services and departments within the VA hospital network and on the connectivity of systems throughout the hospital, among hospitals, and between hospitals and Central Office elements.

Due to the vast differences in mission between the NIH clinical center and the VA medical center network, the computer systems that support these facilities have evolved along totally different paths. These distinctions can be best described as follows:

1. The NIH system is a mature product that was first installed over 12 years ago. The system was purchased from Technicon Inc. in 1975 and included hardware, software, facilities management, and maintenance. Since 1981, NIH has replaced the vendor's hardware with their own, purchased a license for the software, and initiated in-house facility management. In addition, the vendor supplied basic software which consisted of 2,000 screens has been expanded by the staff to over 25,000 screens. DHCP is characterized by a five year span, vendor provided hardware, user developed software, and in-house facility management.

2. The costs of the NIH system are difficult to estimate because they have been incurred by both private contractors as well as the government and because for several years the computer hardware used to operate the system was obtained from another institute at no cost. Documented costs for the system include $1.8 million per year for the original system which remained in place for 63 months; $1 million for a perpetual license for the software; and approximately $700,000 for a hardware replacement. Other costs include FTEE which have increased in number from 10 to 15 in 1981 (when NIH staff replaced vendor staff) to upwards of 30 today. There are no life cycle costs available. DHCP's costs have been thoroughly documented by the Agency, external agencies, and independent contractors.

3. The NIH system has automated virtually every clinical function in the medical center (eighteen services in all) and this includes order entry/results reporting for lab, pharmacy, radiology, and other ancillary services. It also provides comprehensive support for nursing. DHCP has implemented standardized CORE software for all

medical centers and is in the process of completing additional priority applications.

4. The NIH system's clinical orientation and research mandate has resulted in staff having to create thousands of computer screens for research protocols. Furthermore, physicians are responsible for inputting over 85% of all test orders and patient care activities are integrated among treatment, diagnostic and research services. The system does not support personnel functions. DHCP is characterized by more generalized software, a wider variety of users, integration of patient care data only, a complete range of administrative functions i.e. fiscal, personnel, supply, and external reporting requirements.

General TURNAGE. Sir, may I mention another point in this case.

Senator PROXMIRE. Go right ahead.

General TURNAGE. I don't know Mr. Childs, and this is the first time I have heard of this particular input. I do know, however, what we have done about it, and it indicated, based on your reading, that he took a look at this 18 months ago. It is precisely why Mr. Cox is here in our system, to correct some of the things that Mr. Childs may have had an impression about.

When I take his comments, and I compare those comments that we have had from Price Waterhouse, what we have had from the IG, what we have had from the GAO, and what we have had from our own analysis of the system, as well as from the independent study of Booz-Allen & Hamilton, I feel very confident that the direction we have taken here is the precise and right one.

When I compare both timeliness, responsiveness, and cost, which all of us are vitally interested in here, I believe that we are on the right track and we have done it in consonance with the direction that the Congress has given us ever since 1982.

SPECIALIZED MEDICAL PROGRAMS

Senator PROXMIRE. When I served as the chairman of this subcommittee in the 1970's, an issue that we were forced to come back to year after year was the VA's failure to close underutilized specialized medical services such as the kidney transplant centers, cardiac catheterization centers, and the like.

The continued operation of underutilized centers is not only a disaster for the American taxpayer who has to foot the bill, but also a tragedy for those veterans who die or suffer permanent injury because they do not receive the quality of care that they have a right to expect. Practice makes perfect, and the more procedures performed by a specialized care facility, the better the chances the patients will survive or avoid major problems.

Having said this, I was glad to hear that you are taking action to close underutilized cardiac surgery programs at four VA facilities. When will the four facilities close their doors and accept no more patients?

CARDIAC SURGERY

Dr. GRONVALL. Each of the four places where a decision has been made not to do cardiac surgery is a case in and of itself. In two of the medical centers, cardiac surgery is not being performed. At the other two, detailed plans are currently being developed to provide an orderly transition.

Senator PROXMIRE. Can you tell us when the other two will be completed?

Dr. GRONVALL. Mr. Lindsey is here, and he can tell me when the transition plan will be completed.

Mr. LINDSEY. The transition plans will be completed in 2 or 3 weeks.

Senator PROXMIRE. When will they close their doors?

Mr. LINDSEY. The transition plan will have the proposed dates for phasing out those programs.

Senator PROXMIRE. Will you provide that, for the record, when you determine that in a couple of weeks?

Dr. GRONVALL. Yes.

[The information follows:]

CARDIAC SURGERY

Final implementation plans for the closure of the cardiac surgery programs at VA medical centers Brooklyn and Long Beach are still being formalized. It is estimated that these two programs will cease performing open heart procedures no later than the end of fiscal year 1987 which will provide for an orderly transition of cases from these medical centers to alternative VA sources of care.

Senator PROXMIRE. Your special advisory committee for cardiac surgery recommended closing all open heart surgery units that did not handle 150 cases per year by the end of 1988. How many of your existing 45 in-house and six contract heart surgery units perform fewer than 150 procedures per year?

Dr. GRONVALL. I don't know that figure, but I would comment, sir, that the special committee did not explicitly recommend to us that we, independent of anything else, close every unit that fell below 150 cases per year.

The committee recommended a series of criteria that could be utilized to review and assess our cardiac surgery programs. They recommended 150 cases as an appropriate threshold level of volume. The application of that criteria assesses not only the number of cases done in the VA itself, but the number of cases done by the teams, since in many instances, the team operates in more than one hospital.

The matter is more complex than establishing a single statistical threshold, then closing all below it, and leaving all of those above it open.

Senator PROXMIRE. On page 338 of the Senate hearings for fiscal year 1987, the following sentence is unequivocal. It says, "All remaining active services should be informed that the caseload which justifies continuance will be 150 cases per year by the end of fiscal 1988."

Dr. GRONVALL. Yes, sir; and we have adopted that as one among several criterion measures that should be utilized, but I do not believe

that either in that report, or anywhere else, has the VA adopted as a specific single statistical yardstick that any cardiac surgery program falling below 150 cases in any year would be discontinued.

Senator PROXMIRE. Why haven't you adopted that?

Dr. GRONVALL. Because I believe that would do a gross disservice to the kind of judgment that has to be made, taking into account volume of cases, the mortality and morbidity experience, the geographic dispersion of the program, the distance that a veteran has to travel.

Senator PROXMIRE. Doesn't it put lives in serious jeopardy if these centers don't have the skills that can only come with the experience of performing these procedures? It seems to me that you are going to have a far lower performance.

Dr. GRONVALL. No, sir; no veteran's life who is having cardiac surgery in the VA is being put in jeopardy by the way we have applied our recommended series of criterion measures. We have carefully reviewed the mortality experience in every one of our cardiac centers, and for those centers that are currently doing below 150 cases per year we have careful documentation on the results of the quality of their care, and we have taken that into account. I can assure you that no veteran's life is being put in jeopardy.

General TURNAGE. There is another facet, Mr. Chairman.

Senator PROXMIRE. Before you answer, General, I would just like to say to the doctor, I hope that you will give us a more detailed response by facility, because it does seem to be directly contradictory with this statement. Will you do that?

Dr. GRONVALL. I will be pleased to do so.

[The information follows:]

CARDIAC SURGERY

The volume criteria for cardiac surgery in Fiscal Years 1985 and 1986 was 100 cases per year. This is to be increased to 150 cases by the end of Fiscal Year 1988 as recommended by our special advisory committee. While a figure of 150 cases per year was set as a goal by the special advisory committee, it was recognized that geographic factors and, more importantly, morbidity and mortality, regardless of numbers of cases, are of highest importance. In developing a plan to consolidate programs, case load, mortality, and other factors were used in evaluating each program. As a result of thorough review of all pertinent factors, the medical centers with low case load and the reasons for closure or nonclosure follow:

Brooklyn, New York - Met volume of 100 cases per year three years in the past seven years. Mortality rate in Fiscal Year 1984 was more than three times the VA national average. This station has been warned about the volume requirement of 100 cases per year many times, and it was felt that they would not be able to meet the 150 case requirement soon to be established - scheduled to be closed.

Charleston, South Carolina - Met volume of at least 100 cases per year for three years in the past seven years but when fully operational did up to 132 cases per year. Mortality rate has been satisfactory every year for the past seven years. The number of operating rooms were limited for a period of two years while seismic renovations were made - the potential volume of patients were there.

East Orange, New Jersey - Has met volume of 100 cases only one year in the past seven. It has been determined that it would be difficult to ever reach the new volume requirement of 150 cases per year. Mortality rate was more than two times the VA national average one year and five times the national average for one year. For five years, it was satisfactory. In Fiscal Year 1986, it was four times the national average. This station has changed cardiac surgeons several times over the years and lost the last one prior to the review - unit has closed.

Lexington, Kentucky - Met volume of at least 100 cases per year for four of the last seven fiscal years - volume was limited by lack of funding; the patients were there. Mortality rate was more than twice the VA national average in Fiscal Years 1980 and 1985.

Long Beach, California - Met volume requirement of 100 cases in four of the last seven years. Mortality rate was unsatisfactory one year (1985). The affiliated university cardiac surgery training program has been disaccredited by the residency review committee - scheduled to be closed.

Miami, Florida - Has met the volume requirement of 100 cases two years in the past seven. The volume of cases was reduced due to administrative actions during a period of investigation. Mortality rate was three times the VA national average one year and more than twice the average for two years. For the last two fiscal years,

this stations has had a mortality rate less than the national average. Following review by a high level professional panel, the program has been reopened and is now being allowed three years to reach 150 cases per year.

New Orleans, Louisiana - A new program which was opened in Fiscal Year 1984; allowed three years to reach minimum work load volume. This program is gradually increasing work load. Mortality rate has been satisfactory.

San Juan, Puerto Rico - Has never met volume criteria, but it is the only cardiac surgery program on the island and as such is considered a unique situation. The mortality rate has been satisfactory until the last two years when it increased to more than twice the national average. A site visit has been scheduled for May 12, 1987, to investigate this recent increase.

Washington, D.C. - Has met minimum volume of 100 cases only one year in the past seven. The mortality rate has been satisfactory during the last seven years. It is not affiliated with an accredited cardiac surgery training program. This station has had difficulty in keeping a cardiac surgeon for more than two years. Earlier there was a funding deficit to support cardiac surgery - program has closed.

West Haven, Connecticut - Has met volume requirement of 100 cases only one year in the past seven. Mortality rates have been satisfactory. It is anticipated, however, that the work load will increase with closure of Brooklyn, East Orange, and Washington, D.C.

Senator PROXMIRE. Go ahead, General.

General TURNAGE. The issue that I was going to make was not specifically mentioned by Dr. Gronvall, but it is one of the criteria associated with the thinking about continuation of service in any one particular hospital.

In so many cases, as you know, Mr. Chairman, out of 172 medical centers, 104 of them are affiliated with university medical centers. Some of the very same doctors that are performing the cardiac surgery in our system, which may be something less than 150, overall the number of episodes that they will be performing will far exceed that. Those are some of the considerations that went into this determination.

RENAL TRANSPLANT

Senator PROXMIRE. Can you tell me how many renal kidney transplants a center has to perform each year to meet your renal transplant standards?

Dr. GRONVALL. No, sir; I don't recollect the standards. I would have to supply that information for the record, and I will be pleased to do so.

Senator PROXMIRE. Can you tell me, either for the record or directly, how many renal transplant units are currently in operation?

Dr. GRONVALL. No, sir; I can't tell you. I would be pleased to supply that.

[The information follows:]

The information requested is provided as a part of the agency's response concerning specialized care areas.

Senator PROXMIRE. Also, how many of these units meet the standards.

Dr. GRONVALL. Yes, sir.

Senator PROXMIRE. And when you plan to close the units not meeting the standards.

Dr. GRONVALL. We will include all of that information in a report to you.

[The information follows:]

The information requested is provided as a part of the agency's response concerning specialized care areas.

SPECIALIZED CARE AREAS

Senator PROXMIRE. Finally, for the record, I would like a listing of the number of medical units you have in each specialized care area—cardiac catheterization, hemodialysis, alcohol treatment, and so forth—an indication of what the utilization standard is for each specialty area, the percentage of units meeting the standard, a list of those units not meeting the standard, including the numbers of procedures being performed by each noncomplying unit, and an indication of what noncomplying units you plan to close down by the end of the fiscal year with closure dates.

Dr. GRONVALL. When you said, "and so forth," I want to be sure that we will follow up with the staff to be sure that we know what kinds of special medical care programs you are including in that question.

Senator PROXMIRE. I am glad that you bring that up. I should not have said "and so forth," because that does leave it wide open. The staff will provide you with a specific listing of what the others are.

Dr. GRONVALL. Thank you.

[The information follows:]

The information requested is provided as a part of the agency's response concerning specialized care areas.

SUBMITTED QUESTIONS

Senator PROXMIRE. We have a number of other questions for the record. Unfortunately, I have another commitment to make.

I want to thank you very much. I am very impressed by the quality of the responses, and by the quality of the thinking that has gone behind this. I know that you have done a lot of fine work. I didn't mean by my criticisms to be in any way demeaning, because I think you have an excellent organization.

[The following questions were not asked at the hearing but were submitted to the Administration for response for the record:]

Questions Submitted by Senator Proxmire

COMPENSATION AND PENSIONS

Question: General Turnage, you are requesting $14.3 billion for compensation and pensions in the coming fiscal year and recommending that we split the account into three separate new accounts. Frankly, I don't see what this would accomplish other than to create more paperwork, especially since the funds in this account are for entitlement programs and cannot be cut through the appropriations process. Why are you making this recommendation?

Answer: The structure is recommended in order to achieve a more informative presentation of the budgetary requirements for these three distinct benefit programs. The adoption of these new appropriations would more closely correspond to a government-wide functional program classification and facilitate program presentation. We would be pleased to meet with the subcommittee staff to provide additional information regarding this proposal.

DISCRIMINATION COMPLAINTS

Question: You are requesting $1,540,000 next year for the Office of Equal Opportunity. These funds will support a staff of 31 which -- and I'm quoting from the justification -- ".. will enable OEO to accomplish a substantial reduction in the inventory and the processing times for discrimination complaints ... while providing a maintenance level of Affirmative Action initiative." The justifications make no mention of the total number of discrimination complaints currently pending. Can you tell us how many are on file?

Answer: As of February 1, 1987, 1,236 complaints were pending at one or another of the stages of processing.

Question: To what extent will your complaint backlog be reduced between the end of fiscal year 1987 and the end of fiscal year 1988?

Answer: The Administrator's goal, communicated throughout the Agency, is that by the end of FY 1987, the number of pending cases will be reduced to 650 representing approximately a one-year intake of new complaints. We expect to hold this level during FY 1988.

Question: How long does it take - on average - to resolve these complaints?

Answer: During the period October 1, 1986, to March 5, 1987, the average time required to close a complaint was 719 days. This is due to the considerable number of very old cases that are working their way through the system, reflecting our on-going initiatives to deal with the complaint backlog. As these old complaints are concluded within the next several months a rapid and marked reduction in average processing time is anticipated.

Question: How long will it take to process complaints under your proposed 1988 budget?

Answer: The Administrator's goal is to reduce average processing time to 200 days by the end of Calendar year 1987. It is expected that this level of accomplishment will be sustained under the proposed 1988 budget.

WOMEN AND MINORITIES

Question: I have a few questions concerning the VA's record at providing employment opportunities for minorities and women. This is an issue I used to discuss every year when I first chaired the subcommittee. VA's performance was considerably better than most agencies then and I'm curious to know whether it's still one of the leaders in this important area. Can you tell us what percentage of the agency's total work force is composed of women and minorities?

Answer: As of September 30, 1986, the VA's total permanent work force was composed of 56.1% women and 32.9% minorities.

Question: What percentage of jobs at the GS-12 and above level are held by women and how does that compare with last year's percentage?

Answer: The percentage of jobs at the GS-12 and above level held by women in 1986 was 26.4% compared with 25.2% in 1985. (This answer excludes wage grade equivalents.)

Question: What percentage of jobs at the GS-12 and above level are held by minorities and how does that compare with last year's percentage?

Answer: The percentage of jobs at the GS-12 and above level held by minorities in 1986 was 16.2% compared with 15.7% in 1985. (This answer excludes wage grade equivalents.)

Question: What are your goals for fiscal year 1988?

Answer: We will be developing goals for FY 1988 after the Equal Employment Opportunity Commission issues guidelines for that fiscal year. We will continue our efforts to eliminate, or reduce, underrepresentation of women and minorities in VA's work force. Emphasis will be placed on both external and internal recruitment activities such as expanded targeted recruitment programs and upward mobility training programs.

GENERAL CUTS

Question: General Turnage, you are proposing a total budget for major construction projects of $400,556,000, an increase of $12,140,000 over your 1987 appropriation. On the other hand, we are going to be faced with some extreme pressures to hold down spending this year. Consequently, I'd like to hear from your experts regarding what project or projects we should

delete from your request if we decided to freeze your major construction budget at last year's level.

Answer: The VA's FY 1988 request for budget authority in the Construction, Major Appropriation represents an increase of $17,848,000 over the FY 1987 appropriation instead of the $12,140,000 cited in your question. The VA's FY 1988 Major Appropriation request differs from major appropriation requests in recent years in that we did not request a reprogramming from prior years' money. This is due to the lack of funds available in the major working reserve as compared to previous years. While the budget authority for FY 1988 exceeds the budget authority for FY 1987 by 4.7 percent (+$17,848,000), the program level for FY 1988 is 8.9 percent (-$39,152,000) less than FY 1987. If the major construction budget authority remains at last year's level, we would delete the project at Prescott, Arizona, "Replace Domiciliary," and the project at San Francisco, California, "Remodel Buildings 2, 4, 200 for New Functions." These projects have the lower scores under our prioritization methodology among the FY 1988 projects and would be recommended for FY 1989.

GENERAL COSTS

Question: You are requesting an increase of over 50% in your construction account. What should we slice from the request if we decide to knock down your $121,038,000 request to the current level of $80,000,000?

Answer: A decision to reduce our minor request to the FY 1987 level would have a serious negative impact on the minor program which has been constrained for the past two years. It is estimated that we would be unable to fund up to 50 minor and minor miscellaneous projects if the request were reduced. This would mean that a variety of clinical improvements, patient environment and support area improvement projects which have had their preliminary design completed would not proceed.

Reductions in the past years have been based on poor obligation performance. In FY 1986, as a result of management improvements and a commitment to improve performance by field personnel, the minor program performance exceeded the operating plan obligations for the year. We expect this performance to continue in FY 1987. This will leave the end of year unobligated balance at its lowest level in several years.

ALLEN PARK, MICHIGAN

Question: In going through your major construction spread sheets, I notice there have been some fairly significant cost shifts. For example, last year your Allen Park, Michigan, replacement/modernization project was estimated to have a total cost of $292 million. In this year's spread sheets that cost has fallen to $195,763,000. That's good news for the taxpayers, but why was your original estimate so wide off the mark?

Answer: During the advance planning and environmental compliance processes, a number of alternative approaches were explored to meet the health care needs of veterans in the Allen Park/Detroit area. The $292 million figure shown in the FY 1987 budget submission reflected the total estimated cost of the split facility concept which provides for retention of Allen Park for extended care and construction of a new replacement hospital in downtown Detroit. On December 10, 1986, after extensive review of all of the conceptual alternatives explored, the Administrator made a decision to construct an acute hospital in downtown Detroit and to authorize nursing home care beds at the site of the existing Allen Park Medical Center. The final number of nursing home care beds in Allen Park is currently being reviewed and will be consistent with the Agency longterm care policy. The current estimated cost range for the downtown Detroit hospital is $192 to $222 million with $181.8 million currently estimated as needed in FY 1989. The cost of the extended care facilities will be decided once the program level and construction strategies have been determined.

SAN FRANCISCO MEDICAL CENTER

Question: You are requesting an additional $6,700,000 for the final phase of a modernization and realignment project at the San Francisco Medical Center. Last year's justifications gave no indication that you would need any additional funds for this project. What has happened over the past 12 months to increase the cost of this project?

Answer: Subsequent to the submission of the VA's FY 1987 budget request, it was determined that a number of programmatic changes were necessary in the San Francisco project to meet the changing needs of the medical center. In June 1986, it was determined that work in Building 2 would be completed under the current contract, but that the scheduled work in Buildings 4 and 200 would be rescoped and readvertised as a final phase, with the funding required to complete this phase requested in the FY 1988 budget.

MAJOR CONSTRUCTION--OPERATING ROOMS

Question: In March of 1981 GAO reported that continued use of VA's criterion for determining the number of operating rooms in new or replacement hospitals - 1 room for every 28 surgical beds - would result in construction of too many operating rooms. GAO developed a model for projecting the number of operating rooms, using actual workload data. Although VA agreed that GAO's model would enhance its planning ability, it did not think it was comprehensive or flexible enough. In May of 1983 VA began developing its own model. In April of 1986 GAO reported that VA's model was still being developed. GAO also concluded that VA continued to build too many operating rooms. VA continued to resist using the GAO model. What is the status of the VA operating room planning model?

Question: Has it been used on any projects in this year's construction budget?

Answer: The model has been completed and is the review process within the Department of Medicine & Surgery. When the review is

complete, and it is approved by the Chief Medical Director, it will be provided to the Office of Facilities for application. None of the projects in the 1988 Construction budget have been developed using this proposed model.

Question: Why do you insist on incorporating a range of utilization rates into your model?

Answer: Actually our model is based on discharge rates. The model is based on all data available since the introduction of DRG-based funding allocations, i.e., data since the beginning of FY 1984. Multiple years are used to reduce the impact of any statistical anomalies which might occur in a given single year. In addition, the model allows relatively small ($\pm$ 10%) adjustments to be made to the observed discharge rates to account for any observed trends in the historical data. These adjustments are viewed internally to determine their validity.

Question: Considering that your hospital bed sizing model uses fixed occupancy rates for medical, surgical and psychiatric beds, and that several other managers of large health care delivery systems, such as the Department of Defense and Humana use fixed utilization rates, why have you resisted?

Answer: As discussed above, we think that the utilization of our discharge rate model which incorporates DRG-based data provides a more accurate method of projecting our needs.

Question: I note that the following projects in your fiscal year 1988 request for major construction funds will involve operating rooms:

Atlanta, Georgia clinical addition
Dayton, Ohio bed replacement and modernization
Huntington, W. Virginia clinical improvement addition
Jackson, Mississippi clinical addition
Montgomery, Alabama outpatient and ward renovations

North Chicago, Illinois environmental improvements, patient and nursing home care buildings
Palm Beach, Florida new medical center

For these, and any other projects we may have missed, please provide information on (1) the number of operating rooms currently in the facility, (2) the total to exist after the construction project, (3) the basis for the projected number of operating rooms needed, and (4) the projected number of rooms to be needed using the GAO model.

Answer: The following chart responds to (1) and (2):

VAMC	CURRENT OR ROOMS	ROOMS AFTER PROJECT
Atlanta	7	9 /a
Dayton	no operating rooms in project	
Huntington	4	6
Jackson	6	8
Montgomery	3	4
N. Chicago	4	5
Palm Beach	N/A	/b

/a the number of OR's is being adjusted.

/b the number of operating rooms will be determined when the projected numbers of surgical beds and workload have been established

(3) The basis for the projected number of operating rooms needed is the Planning Criteria for VA Facilities, H-08-9, Chapter 286 (Surgical Service) and MEDIPP bed projections for FY 2000.

(4) The GAO model uses as inputs, the number of cases performed, the average time required per case, and a pre-set utilization rate which was recommended to be 80%. We do not have available, within the time frame given, the information necessary to apply the GAO model.

CONSTRUCTION -- NURSING HOME CARE NEEDS

Question: This is the second year's budget under your revised policy of meeting more veteran's nursing home care needs in state and community beds rather than VA beds. Consistent with that policy, your fiscal year 1988 budget includes no funds for new nursing home units although you plan to expand nursing home capacity by adding 170 beds as a part of the modernization of the North Chicago VA medical center. You also have requested $4.5 million in minor construction funds to convert excess hospital beds into nursing home beds or to renovate or relocate existing beds. How many new VA nursing home care beds will be created with the funds requested in this budget?

Answer: The minor construction funds in the FY 1988 budget will result in 139 VA nursing home beds.

Question: One implication of the revised policy is that there will be enough capacity in state and community nursing homes to absorb the volume of patients VA intends to place there. Do you agree with that implication? If so, what studies have you done to support it?

Answer: The VA has always planned to provide 40 percent of the needed nursing home care through the Community Nursing Home Program. But, the future of this program will be influenced by the policies of reimbursement, bed expansion and other issues which are made at the state level. A similar state-based decision process exists in the State Home Program as the VA cannot direct a state to construct a state home. The Community Nursing Home and State Home Programs will be closely monitored.

Question: Are you still projecting nursing home needs based on a goal of providing 30% of needed care through VA nursing homes, 30% through State veterans' homes, and the remaining 40% through community nursing homes?

Answer: Yes.

MEDICAL AND PROSTHETIC RESEARCH

Question: You are requesting $198,766,000 for medical and prosthetic research in fiscal year 1988, an increase of $8,851,000 in your current appropriation. However, you also received a $20 million one-time transfer from the Defense Department (DOD) in fiscal year 1987. As I understand it, you plan to obligate $12 million of the transfer money in the current fiscal year and another $8 million next year. Can you tell us how you arrived at this breakdown?

Answer: For FY 1987, DOD identified research studies of particular interest to DOD. These programs had been reviewed in the peer review process and approved for funding. The cost of continuing or initiating these research programs was $12 million. In order to pursue a collaborative research effort between VA/DOD investigators, a special solicitation was issued January 22, 1987 for collaborative research projects to be submitted by July 1, 1987. These and other projects will be reviewed and ready for funding in FY 1988 with the remaining $8.0 million.

Question: You are requesting bill language that would extend the availability of the DOD money from the current two-year period to four years. Why is the extension necessary if, as your justifications indicate, you plan to completely obligate the funds by the end of 1988?

Answer: Medical and Prosthetic Research indeed plans to obligate the total $20 million during FY 1987 and FY 1988. But inasmuch as this DOD/VA collaborative effort is a new endeavor, the four year period allows for more flexibility.

Question: The DOD transfer money is for "additional research projects that will be beneficial to both agencies." What kind of work will you be doing with the money?

Answer: A list of VA merit reviewed and approved projects were submitted to the DOD soon after the passage of P.L. 99-661. The DOD identified a number of research projects totaling $12 million for FY 1987. These projects are being supported from the $20 million transferred to the VA. In FY 1988 a set of new, direct collaborative research programs involving both the VA and DoD scientists will be funded with the remaining $8 million.

Question: Once again, this year you are asking for the authority to obligate your medical and prosthetic research budget over a four year period. I know that historically you have been given this authority, but why does it take you four years to obligate these funds?

Answer: Medical and Proshetic Research fully expects to obligate all funding within two years of authorized budget year and historically this has been accomplished. The collaborative effort between the VA and DOD is a new endeavor and may present some unanticipated situations. The ability to expend the dollars over a four year period allows the flexibility that may be needed to fulfill the intent of P.L. 99-661. The VA is not asking for a four-year appropriation for the entire medical and prosthetic research budget for FY 1988. Our legislative request is to only allow the $20,000,000 transferred in from DoD in FY 1987 to be available for obligation for four years. Historically, the amount has been a two-year appropriation.

Question: Wouldn't a two-year period be sufficient?

Answer: As stated in the response to the previous question, we fully expect to obligate all funding within two years of the authorized budget year, and historically this has been accomplished. However, unanticipated situations may arise, and flexibility may be needed to expend the dollars over a four year period.

Question: Can you provide, for the record if necessary, a breakdown of how much of your medical and prosthetic funds have been obligated in the third and fourth years of availability in fiscal years 1980 through 1985?

Answer: From FY 1980 through FY 1985 the Research and Development appropriation was a two year appropriation. No funds were available beyond two years and thus none were obligated.

MEDICAL CARE--STAFFING

Question: Although you are requesting a medical care budget of $9.97 billion in 1988, an increase of about $556 million over the total currently available, medical care staffing would be reduced by 2,413 full-time equivalent positions in the coming fiscal year.

Last year Dr. Ditzler affirmed an earlier estimate that the entire medical care system is understaffed by an average of 9.2%. Dr. Gronvall, do you believe the proposed staffing cut would intensify the understaffing problem?

Answer: The referenced understaffing refers to the relationship of FTEE employment to a series of staffing guidelines which are intended as tools for medical center directors to use in managing facilities.

The planned 1988 reduction is a net decrease of 2,410 FTEE. Most of this reduction reflects improved productivity, along with technology improvements and reduced workload. This level of staffing will enable the VA medical care system to provide high quality health care to patients accepted for care.

MEDICAL STAFF SALARY INCREASES

Question: Your budget justifications indicate that the median grade level of your medical care, medical and prosthetic research and medical administration staffs do not change from FY 87 to FY 88. In other words, there appears to be no grade creep. The average payroll for each of these three does change, as one would expect. What seems peculiar is that the change in average payroll varies significantly between these programs.

Medical care increases by.....5.2%
Medical and prosthetic research increases by 8.3%
Medical administration increases by.....6.3%

OMB Circular A-11 indicates that salaries are projected to increase at a 3.5% annual rate. How do you account for the discrepancy between your increases and the OMB guidance figure of 3.5% as well as the difference among program elements?

Answer: We have no knowledge of the 3.5% annual salary rate increase in OMB guidance. We have calculated that the largest increase in average salary in 1988 is due to the new Federal Employee's Retirement System (FERS). Other increases in the 1988 average salary are due to normal payroll increases (+1%) and annualization of the 1987 3% payraise (+3/4%).

The cost of the government share of employee retirement increases by 15% by 1988 for every employee covered under FERS (22% government contribution ignoring voluntary matching of employee contributions to thrift) as opposed to the old Civil Service Retirement System (CSRS; 7% government contribution).

After January 1, 1987 (effective date of FERS) there are three basic groups of employees: employees remaining in CSRS; employees switching from CSRS into FERS; and employees hired after the end of calendar 1983 (considered the transition group). Each of the three appropriations (Medical Care, MAMOE and Research) would have a different mix of these groups and each group has a prescribed OMB methodology in determining retirement costs. For instance, OMB assumed that 40% of CSRS employees would switch into FERS; one-half of these would switch the last quarter of FY 1987 and the other half, the first quarter of FY 1988.

By January 1987 over 20% of Medical Care employment were new federal workers hired after 1983 (transition group automatically placed into FERS). Therefore a good portion of Medical Care's average salary increase occurs in FY 1987. On the other hand, MAMOE and Research new hirees very often are filled from within the VA System (are not new government employees). As a result, average salaries increased very little in FY 1987 due to the transition group.

Over 87% of the increased government's cost for switchers (those employees opting for FERS), according to OMB assumptions, will be annualized in FY 1988 (1-1/2 x 1/4 year in FY 1987 = .875 increase in FY 1988). The switchers comprise a greater share of the total employees in MAMOE and Research than in Medical Care (due to

the large transition group). As a result, MAMOE and Research average annual salary percentage increase in 1988 exceeds Medical Care's.

SPECIALIZED MEDICAL CARE - UNITS MEETING STANDARD

Question: For the record, I'd like a listing of the number of medical units you have in each specialized care area - Alcohol Treatment Units, Blind Rehabilitation Centers, Cardiac Catheterization Centers, Drug Dependence Treatment Centers, Electron Microscopy Units, Hemodialysis Centers and Home Dialysis Programs, Satellite Dialysis Units, Hospital Based Home Care, Prosthetic Treatment Units, Pulmonary Function Labs, Renal Transplant Centers, Respiratory Care Centers, Speech Pathology Units, Spinal Cord Injury Centers, SCI Home Care Units, Supervoltage Therapy Units - indication of what the utilization standard is for each specialty area, percentage of units meeting the standard, a list of those units not meeting the standard including the numbers of procedures being performed by each non-complying unit, and an indication of what non-complying units you plan to close down by the end of the fiscal year with closure dates.

Answer: Since 1982, those programs designated as "special medical services" have been integrated into the overall budgeting process for VA medical facilities and are considered part of the total resource allocation review process of the VAMC. While it is no longer mandatory that utilization rates for those programs be monitored centrally, there are various strategic management systems in place in the Department of Medicine and Surgery that provide program managers with information by which to monitor and review individual programs for quality and efficiency. The attached chart provides information on the specific programs cited in the question.

Program	Number	Annual Standard	% Meeting Standard	Noncomplying Units Place	Number	Closures
Alcohol Dependence Treatment Units	103	85% Occupancy rate	99%	Augusta	52%	Bed reduction planned for FY-87
Blind Rehabilitation Centers	4	85% Occupancy rate	100%			None
Cardiac Catheterization Labs 1/	70	300	93%	Baltimore Bronx Dayton East Orange Syracuse	186 174 243 170 160	None
Drug Dependence Treatment Units 2/	51	85% Occupancy rate	99%	North Chicago	22.4% (turnover rate)	Bed reduction planned for FY-87
Electron Microscopy 3/	48	300 or 150 Specimens	96%	Charleston Shreveport	176 295	None
Hemodialysis Centers 4/	57	230 treatments per bed and 1.5 patients per FTE funded		N/A		

Program	Number	Annual Standard	% Meeting Standard	Noncomplying Units Place	Number	Closures
Home Dialysis		Included as part of Hemodialysis Centers				
Satellite Dialysis	20	156 treatments per bed per year		N/A		
Prosthetics Treatment Centers 5/	21	6000 patients	95%	Bronx	3,647	None
Pulmonary Function Labs 6/	172	N/A				
Renal Transplant 7/	10	15 cases	40%	Durham	10 cases	None
				Hines	6 "	
				Iowa City	3 "	
				Minneapolis	6 "	
				Richmond	1 "	
				Salt Lake City	10 "	
Respiratory Care Centers 8/	None					

Program	Number	Annual Standard	% Meeting Standard	Noncomplying Units Place	Number	Closures
Speech Pathology 9/	140	1250 visits	98%	Boise	900 visits	None
				Walla Walla	600 "	
				Wichita	500 "	
SCI Centers 10/	19	80% occupancy rate	47%	Seattle	63%	None
				Bronx	74%	
				Castle Point	78%	
				Memphis	66%	
				Miami	66%	
				Cleveland	53%	
				Milwaukee	70%	
				Hines	56%	
				St. Louis	71%	
				Long Beach	70%	
SCI Home Care 11/	19	None				
Radiation Therapy 12/ (in lieu of supervoltage therapy)	26	300 patients/ 6000 Treatments	98%	Northport	222 patients 4,792 treatments	None

Program	Number	Annual Standard	% Meeting Standard	Noncomplying Units Place	Number	Closures
Hospital Based Home Care 13/	48	50 Average Daily Census	98%	New York Tucson	45 45	

Notes

1) Cardiac Catheterization workloads at Baltimore and Dayton are expected to grow with the activation of replacement VAMCs at these locations. Other programs wil be carefully monitored and an assessment made of their need for continuation.

2) North Chicago's drug treatment program is a Therapeutic Community program for which the standard is a 30% turnover rate with 80% bed occupancy.

3) Standard for electron microscopy is 300 specimens if fully funded; 150 specimens if half-funded. Loss of technical personnel resulted in slowdown in programs at Charleston and Shreveport. Needed staff now hired and noncompliance being corrected.

4) Standards applied when centers were monitored as "special medical programs" are now used primarily for review of proposals for new or expanded dialysis programs monitored by a variety of clinically relevant measures, audits and special reports.

5) The Bronx Prosthetics Center has been affected by some shifting of resources to Manhattan VAMC. The Bronx VAMC has a Spinal Cord Injury Center, and a high level of prosthetics care will continue to be required.

6) There is no national standard.

7) When renal transplantation first began, special programs with special funding were initiated at twenty Veterans Administration medical centers throughout the country. Since Fiscal Year 1982, however, none of the present programs has been specially funded. Renal transplant surgery now is considered state of the art although requiring performance by teams of competent medical personnel who have been specially trained in this procedure. There is an ongoing internal audit of these procedures, established initially as programmatic audits but now continued as outcome quality assurance monitors. The initial standard for each renal transplant program was established as a minimum of fifteen transplants per year. Since we no longer consider these as special programs, there has been no justification to stop transplant surgery in any Veterans Administration medical center as long as results of the transplants have been satisfactory as measured by the quality assurance monitoring.

8) Respiratory care centers have been eliminated because single disease wards are obsolete.

9) All noncomplying speech pathology units were started in the last 4-6 months. By the end of the fiscal years all programs will be meeting the standards.

10) For Milwaukee, Seattle, Hines, Cleveland, Long Beach, St. Louis, Castle Point and Bronx VAMCs, the number of SCI beds actually required is lower than the number of designated SCI operating beds. Since occupancy rates are calculated on the basis of operating beds, this produces a low rate of occupancy for these SCI centers. There exists no evidence of eligible veterans requiring SCI care being denied admission to SCI centers. In fact, both the turnover rate and patients treated in these units have increased. While this program is critical to our mission and must be maintained, it appears that more acute SCI beds are available at these locations than are actually required. A review is being conducted to ascertain an appropriate bed level, mix and system distribution. Memphis and Miami VAMCs have beds out of service due to construction projects.

11) SCI Home Care is combined with HBHC in several medical centers. A revised AMIS report implemented October 1, 1986, will provide data on which to develop productivity standards.

12) Because of problems and costs inherent in transporting patients to metropolitan New York, there are no plans to close the Northport Radiation Therapy Unit. Also, there are no private facilities available for contract services within the commuting area.

13) The two noncomplying HBHC programs had personnel changes which impacted upon their ability to meet standard. Both programs achieved workload standard in previous fiscal year.

MEDICAL CARE -- FEE-BASIS PAYMENTS TO PRIVATE HEALTH CARE PROVIDERS

QUESTION: Your budget justifications indicate that you expect to pay for the treatment of about 27,000 inpatients and 1.7 million outpatients in non-VA facilities under the fee-basis program. I understand the General Accounting Office recommended in August of 1985 that, to get better control over payments to these providers, VA should use fee schedules established under the Medicare program once the claims processing system is fully automated. You agreed to study this approach. Have you completed your study and, if so, what have you concluded?

ANSWER: Yes, we have completed the study. The Medicare fee schedule was examined and was found to be too complex for the needs of the VA. A test was done using the OCHAMPUS fee schedule and we found that use of this fee schedule would greatly increase the cost of this program. It has been determined that the VA should develop its own fee schedule and incorporate it into the DHCP.

QUESTION: What specific steps, if any, have you taken to improve your control over fee-basis payments?

ANSWER: The Fee Module to the DHCP has been developed and will collect the outpatient procedure codes needed for the fee schedule. The software needed to rank this data and develop a local fee schedule has not been developed yet. It is hoped that this software will be distributed to the field by September 1988 and in use by the field in September 1989.

MEDICAL CARE -- QUALITY ASSURANCE ACTIVITIES

Question: Dr. Gronvall, Public Law 99-166 requires the Chief Medical Director to periodically evaluate whether there were significant differences in the mortality and morbidity rates for surgical procedures performed by the Department of Medicine and Surgery (DM&S) from prevailing national standards for similar procedures. The Act also requires the Chief Medical Director to report to the Administrator, by February 1, 1987, on DM&S experience during Fiscal Year 1986.
Can you tell us in general terms what that report showed and provide us with a copy for the subcommittee's files?

Answer: The VA's response to P.L. 99-166 began with implementation of the following procedures and methodology. After convening a working task force of expert VA and external surgeons and methodological consultants:

a. Fifty ICD-9-CM codes for surgical procedures were selected to track the comparisons and reviews made in this project. These procedures were categorized into four distinct levels of risk.

b. A mortality rate range and review threshold were established for each procedure and risk group.

c. VA mortality rates were compared with National Hospital Discharge Summary sampled data and mortality rate confidence intervals.

d. VA procedure specific national mortality rates were compared with the Task Forces' mortality rate ranges and review thresholds; age specific and comorbidity status specific rates for each procedure were calculated and compared to the established ranges and thresholds as well.

e. Facility specific mortality rates for the three legislatively specified procedures, cardiac surgery, kidney and heart transplant, were compared to rates published in the surgical literature.

Findings and Conclusions

Based upon a review of the resulting data, using appropriate analytic and statistical methods, the following findings and conclusions are submitted:

a. The findings in this report support the conclusion that the VA/DM&S surgical program is fundamentally sound and that the mortality rates associated with the four risk groups analyzed in the Phase I project are comparable to reported private sector mortality rates.

b. With few exceptions, mortality rates do not exceed professionally established thresholds which would require individual case record review. Those procedures whose rates appear to exceed their review threshold may be accounted for by the advanced age of the patients who died and by the general risk status of the VA patient population. Individual case record review will be undertaken in Phase II.

c. Mortality rates for cardiac surgery, renal and heart transplant surgery do not exceed rates published in the professional literature.

d. An effective Quality Assurance (QA) program depends upon an effective system of data collection, analysis, and reporting. The PTF system, though effective for other management purposes, is not suitable for QA program or quality of care review purposes, either centrally or in the field.

e. The Decentralized Hospital Computer Program (DHCP) has the potential to provide all essential QA information.

Phase II continues the project during which surgical case Review Methodologies will be designed and refined. An essential requirement for this task will be a model of risk, using severity, comorbidities, disease staging and other appropriate variables.

The Phase I Report was approved on March 16, 1987, and a copy has been provided to the Committee.

Question: In June of 1985 GAO reported that VA had not fully implemented its quality assurance systems. The report raised several questions about the extent to which the medical centers were complying with VA's regulations and conducting necessary quality assurance activities. Do you have any plans for revising the quality assurance requirements? If so, please explain if you have

changed your position concerning the minimum quality assurance activities each medical center should conduct.

Answer: The June 1985 General Accounting Office Report on quality assurance (GAO/HRD-85-57 "VA Has Not Fully Implemented Its' Health Care Quality Assurance Systems") observed that the 13 medical centers reviewed did not perform all of the quality assurance reviews and analyses required by the VA's regulations. Furthermore, GAO raised the question whether all the specific quality assurance requireents are needed.

We believe there should be a minimum set of mandated reviews performed by each medical center as part of its' quality assurance activities. Many of those reviews are prescribed by the Joint Commission on Accreditation of Hospitals (JCAH) in their accreditation standards to which the VA adheres. We do not believe, however, that mandating these hospital reviews and monitoring activities by regulation is a satisfactory approach to ensuring an effective quality assurance program. We believe that a more appropriate way to handle this policy issue is through the DM&S policy manual. Therefore, we are proposing to revise the existing Health Services Review Organization (HSRO) regulations to remove, in part, the requirement that each VA medical center perform a specified number and type of review. At the same time, we plan to revise the VA manual which covers the quality assurance program to detail those requirements, independent of the JCAH standards, which we believe are important for medical centers to follow.

Our position with respect to the minimum quality assurance activities each medical center should conduct is a dynamic one. As we learn more about the effectiveness of activities such as occurence screening, appropriateness reviews, incident reporting, length of stay monitoring, mortality and morbidity reviews, etc. we will continue to enhance the quality assurance program requirements.

Question: To what extent have you reoriented the central office quality assurance role by delegating responsibility for the systematic external reviews to the regions?

Answer: The delegation of operational responsibility for the conduct of systematic external review (SERP) to the Regions has resulted in some necessary reorientation at the central office level. This change has led to an indepth review of appropriate ways to integrate the program needs of quality assurance, clinical and administrative services with those of field managers to ensure that management is well served at all levels in the organization. The primary role remains one of establishing policies and procedures to accommodate this end.

MEDICAL CARE--RESOURCE ALLOCATION METHODOLOGY

Question: Dr. Gronvall, in fiscal year 1985, the Department of Medicine and Surgery began implementing a new resource allocation methodology to distribute the funds appropriated in the Medical Care account to its medical centers. The methodology is based on workloads experienced and the costs incurred to care for those patients. It compares the relative efficiency of a medical center to the average efficiency of the entire VA system: facilities which are more efficient than the average should gain funds, less efficient facilities should lose funds. In addition, you have placed a cap on the amount of funds a facility can gain or lose under this methodology. With a few minor exceptions, the methodology treats all medical centers the same, despite the fact they can vary widely in the scope of their operations. Do you have any plans for grouping like facilities or adjusting the methodology to account for some of the more extreme differences?

Answer: The Department will initiate some studies this year and next year to assess the causes behind the "outlier" facilities. These studies may lead to modification to the existing models, creation of additional models, or grouping of facilities for allocation purposes. For the time being, the current models have caps and limitations, and the results of the models are used as recommendations to line management.

Question: Without the caps, more than 30 medical centers would have each lost over $2 million in fiscal year 1987 funding and more than 35 centers would have gained over $2 million each. What are your plans for removing these caps?

Answer: Budget shifts occur in facilities for a number of reasons. The resource allocation models provide additional insight into the probable operating level of VA medical centers, given a number of assumptions. Actual shifts of $2 million need not be regarded as unmanageable. In a facility which is spending $40 million, a $2 million budget change should be manageable.

We intend to remove the caps as the models evolve to better address specific facility needs. Over time, it is likely that there will be fewer wide swings in "outlier" costs, thus reducing the need for capping resource shifts.

Question: Since its inception the methodology has undergone some rather significant changes, which make year-to-year comparisons difficult. Do you foresee the methodology stablizing to the point where you can measure improvements in productivity and efficiency?

Answer: The methodologies are reasonably stable. Some of the operating parameters have changed, and this has caused some confusion. Yearly productivity can be compared even with the changes in the parameters since the recommended allocations, in the end, provide a stable outcome measure.

MEDICAL CARE--MENTAL HEALTH

Question: I understand that the position of Deputy Director for Mental Health and Behavioral Sciences Service in the Department of Medicine and Surgery--which is to be filled by a psychologist--has been vacant for over one and a half years. Is that so?

Answer: Yes, that is correct. The position of Deputy Director, Mental Health and Behavioral Sciences Service has been vacant since Dr. John E. Davis, Jr. retired in August 1985.

Question: Can you explain why it has taken so long to fill this important position?

Answer: The vacant Deputy Director position was first announced in December 1985. It was reannounced in January 1986, because it was felt that interested and qualified psychologists might not have had time to apply over the holiday season.

The second announcement in January 1986, stated that the location of the position was to be determined. This meant that the position was being considered for possible decentralization. The best qualified candidates were identified through the established rating and ranking procedures and the documents identifying the psychologist for the Deputy Director position were forwarded through VA Central Office for selection with a request for the position to be decentralized so that the psychologist could remain involved with clinical, research and academic activities in addition to assuming the additional administrative responsibilities of the Deputy Director position. Following review of this request, Agency officials determined that this important position could not be decentralized. The nominee for the administrative position was contacted and given time to decide if a relocation to Washington, D.C., was possible. When the nominee decided that a relocation to Washington, D.C., was not feasible, another psychologist on the best qualified list was contacted. That psychologist also decided that relocation to Washington, D.C., was not possible. These discussions were not completed until the second week in October 1986, and the time allowed to recruitment for the position on the basis of the January 1986, announcement was scheduled to expire on October 14, 1986. Rather than ask other qualified psychologists to make a fast decision on relocation, the Department allowed the recruitment period to expire. The vacancy announcement was rewritten to specify Washington, D.C., as the location for this position and to emphasize the full administrative responsibilities required by the position. It has been reissued for interested and qualified psychologists to apply from March 4, 1987, through March 25, 1987.

Question: Just recently, in fact on Wednesday of this week (3/4/87), the VA reissued the announcement that the Deputy Director's position was open and that applications will be accepted until March 25th. Can we expect to see a psychologist in this position within, say, 3 months? Would you say that would be reasonable?

Answer: We believe that a qualified psychologist can be nominated and selected for the Deputy Director, Mental Health and Behavioral Sciences Service within three months of the March 25, 1987, application closing date for the position.

Question: Both Mr. Turnage and Dr. Gronvall are on record as being opposed to decentralizing the administrative positions within the VA Central Office. However, Dr. Errera, the Director of Mental Health and Behavioral Sciences Service, has been granted a 6 month waiver to "decentralize" his position. Can you tell me how this will affect your operations, especially since the Deputy's position continues to remain vacant?

Answer: Dr. Errera has not been granted a 6 month waiver to decentralize his position as Director of Mental Health and Behavioral Sciences Service. He is continuing in a full-time MAMOE position and will spend only up to 5 working days per month at the West Haven VA Medical Center to engage in clinical and educational activities.

A major emphasis of his West Haven activities will relate to geriatric psychiatric patients and the development of appropriate alternative care programs for long-term chronic psychiatric patients.

The agreement with the Administrator and Chief Medical Director was that this arrangement was to be evaluated after 6 months (September 1987).

The Deputy position is in the process of being filled. The application deadline is March 25, 1987. We expect to have a psychologist selected for the Deputy Director position within 3 months of the closing date.

MEDICAL CARE -- PAYMENTS TO COMMUNITY NURSING HOMES

Question: An August 1986 GAO report raised several concerns about the per diem payment VA has been making to community nursing homes. GAO suggested that the VA rates were unnecessarily high when compared with rates paid the homes under the Medicaid program because, as your Inspector General has reported, medical centers were not obtaining competitive rates from the homes. In addition, GAO found the homes were not using cost data, available through the Medicaid program, as a basis for the negotiated per diem rate. GAO also reported on prevailing wage provisions of the Service Contract Act that tend to increase a home's costs when treating VA-supported patients. On the other hand, the higher VA rates could be necessary to ensure that homes participate in VA's program and accept heavy-care patients as well as those needing lower levels of care.

What specific actions have you taken in response to the Inspector General's findings to assure that your medical centers are negotiating contracts with competitive per diem rates?

Answer: The VA is developing new and more explicit guidance on the rate negotiating procedures for the Community Nursing Home Program. This guidance will be incorporated into the Department of Medicine and Surgery's operating manual for the Community Nursing Home Program.

Question: Would use of Medicaid cost data be helpful to contracting officials? If so, what actions have you taken to obtain those data?

Answer: Medicaid cost data is helpful in the contracting process and many VA medical centers use this information in the negotiation process. In the new guidance, currently under the development, medical centers will be directed to obtain this information from state agencies.

Question: To what extent has the Service Contract Act inhibited community nursing homes from contracting with VA, or raised the negoiated rates?

Answer: The VA has not determined the extend to which the Service Contract Act inhibits Community Nursing Homes from contracting with the VA. The VA has received complaints from nursing homes and from the nursing home trade associations about the legislative requirement that nursing homes under VA contract must comply with the Service Contract Act. As the Medicare and Medicaid Programs do not require Service Contract Act compliance, we believe that the VA may be at a disadvantage in finding and maintaining nursing home contracts. However, the number of nursing homes under contract has increased from 3200 to 3600 over the last three years, which may indicate that the Service Contract Act is not a barrier to contracting.

The VA is unaware of any evidence that suggests that adherence to the Service Contract Act raises the negotiated per diem rate.

MEDICAL CARE -- AGENT ORANGE EXAMINATIONS

Question: In 1986 GAO reported that some veterans were not informed of the results of Agent Orange examinations performed at VA medical centers. GAO recommended that VA increase its monitoring of medical center compliance with the requirement to send complete and timely letters to veterans. In response, the Agent Orange Projects Office has begun quarterly spotchecks of the timeliness and content of the letters. Did the spotchecks show that letters are being sent within two weeks of the veterans examinations and are written in understandable language and describe the veterans medical problems?

Answer: The Agent Orange Projects Office recently completed its first quarter FY 1987 Quality Assurance Review of letters sent to veterans who received an Agent Orange examination. Of the 290 letters reviewed, 95% (276) were in compliance with the two week requirement and described the veterans medical problems. The medical centers identified as not being in compliance for the remaining 5% (14) are in the process of being notified of the nonconformance. The VA medical centers are encouraged to personalize letters sent to each veteran, i.e., letters are tailored to respond to the results of the examination for each veteran in readily understandable language.

ADVANCE TECHNOLOGY EQUIPMENT FUND

Question: As you know, the Congress provided $10 million for a pilot test of an advanced technology equipment program (ATEP) in fiscal year 1986. The funds could only be used for advanced state-of-the-art equipment which cost over $500,000 and where at least 50% of the cost of the equipment would come from outside the federal government. The VA indicated in last year's hearing record that an initial evaluation of ATEP would be available in early 1987. Can you tell us how that program is working?

Answer: The program has attracted wide attention of both the professional and public press. Even at this early date, the increased visibility of the VA in the community and heightened public relations are clearly evident. The procurement process, except for final delivery and installation, has progressed smoothly. Timely execution of shared use or mutual use agreements have established firm understandings of each partner's responsibilities in their "joint ventures." All indications are for productive relationships throughout.

Due to long lags in site preparation time, delays in equipment delivery, installation, and testing only one facility is yet in operation. Data from that single facility, in full function approximately two months, do not constitute adequate experience on which to base an evaluation of the program cost effectiveness ratio. Progress and evaluation reports will be provided to the Congress as sufficient data are accumulated.

MEDICAL CARE -- FEDERAL PAYMENTS TO COMMUNITY NURSING HOMES FOR SERVICES TO VETERANS

Question: VA pays community nursing homes for services they provide to certain veterans. The federal government also pays community nursing homes, under the Medicaid program, for services provided to persons with no resources. Tell us what controls you have in place to assure that the Health Care Financing Administration and the VA are not paying nursing homes for the same patients?

Answer: The VA generally uses an all - inclusive contract in the Community Nursing Home Program. In the written, signed contract, the nursing home agrees "that payments made by the Veterans Administration under this contract will constitute the total cost of nursing home care." In addition, families are notified to report any direct or third party billing to the VA.

MEDICAL CARE--FEE BASIS PHARMACY COSTS

Question: In March of 1986, GAO reported to the Administration's Chief Medical Director that the Department of Medicine and Surgery needed to improve its control of the costs of prescriptions filled by private pharmacies on a VA-reimbursable, fee-for-service basis. GAO recommended that 95% of all fee-basis prescriptions be filled in VA pharmacies and I believe VA agreed with the goal. Have you reached the 95% goal yet?

Answer: In the 3rd and 4th Quarters of FY 86, the percent of fee basis prescriptions filled by VA pharmacies were 96.3% and 96.5% respectively. The VA will continue to strive to meet the 95% goal as recommended by GAO.

Question: I understand the Chief Medical Director questioned whether increased volume of fee-basis prescriptions at VA pharmacies would cause a cutback in filling prescriptions for veterans without service-connected disabilities. He indicated to GAO that the Department of Medicine and Surgery was seeking a General Counsel opinion on this issue. What has been the resolution of this issue?

Answer: The opinion of the General Counsel was that in situations where VA's capacity to provide prescription drugs is limited, VA could reduce the volume of prescriptions filled for non-service connected veterans. The Chief Medical Director has determined that the current DM&S policy which stipulates that veterans treated will receive complete care within existing resources will be continued.

MEDICAL CARE -- SATELLITE OUTPATIENT CLINICS

Question: Last year, Dr. Ditzler indicated that, according to a recent study, 3% of all veterans do not live within 100 miles of a VA facility. He also stated that you were re-examining the question of how to serve those 3% with satellite outpatient clinics. What is the current status of your attempt to set priorities for future satellite outpatient clinic construction?

Answer: At our initial Fiscal Year 1988 budget hearing before the House Veterans' Affairs Committee on February 3, 1987, the Chairman requested the VA submit a national plan for satellite outpatient clinic construction. A copy of that plan is attached.

VETERANS ADMINISTRATION
DEPARTMENT OF MEDICINE AND SURGERY

DM&S Plan for Satellite Outpatient Clinics (SOC)

BACKGROUND

The VA's plan for SOCs is created through the Medical District Initiated Program Planning (MEDIPP) process. The Guidance which underlies the MEDIPP process contains a methodology for determining the need for SOCs and also for ranking proposed clinics in priority order. The methodology comes in two parts: (1) threshold criteria, and (2) ranking criteria. The SOC methodology recently has been re-evaluated, and the results of the re-evaluation are currently being reviewed for concurrence in VA Central Office. Until the revisions have been approved, proposals for new SOCs will continue to be assessed according to the criteria which currently exist.

THRESHOLD CRITERIA

Threshold criteria are the basis for consideration of a proposal. Deviations from the criteria are considered only if they are thoroughly documented when the proposal is submitted. The basic threshold criteria used in MEDIPP are:

(1) total Metropolitan Statistical Area (MSA) of 100,000 population or more;

(2) Primary Service Area (PSA) formed around MSA location;

(3) 20,000 or more outpatient visits projected;

(4) SOC site 75 miles or more from an existing VA medical facility; and

(5) Backup hospital in area for emergency support.

RANKING CRITERIA

Ranking criteria consist of objective data used by the Department as a tool to aid in determining the relative priority of SOC proposals. The rankings derived from this process represent departure points for subsequent operational and budgetary planning. Activation dates for SOCs, however, may not coincide with priority rankings because of the many operational factors which tend to increase or decrease the time required to open a clinic. The ranking criteria used in MEDIPP are:

(1) projected number of outpatient visits; and

(2) distance/remoteness. This criterion gives added weight to the proposed clinic with the greatest distance to an existing VA facility. Lesser weights are given to clinics closer to existing VA facilities.

CURRENT DM&S PLAN

The VA currently has 12 SOCs in some stage of planning. Of the 12, two have been included for lease funds in past budgets: Crown Point, IN and Ponce, PR. Because they appear in the budget, these two SOCs have the highest priorities for SOCs. Of the remaining 10 SOCs, 5 are approved at MEDIPP Level 3 which is the highest MEDIPP approval and means that a proposal is eligible for consideration in an Agency budget request. The five approved at Level 3 are: Savannah, GA, Duluth, MN/Superior, WI, Tallahassee, FL, Ocean County, NJ, and Lufkin/Tyler, TX. All 5 of the SOCs at Level 3 are under active operational planning, and their relative priorities will be determined by the administrative and logistical factors inherent in the operational process. Funding for these 5 SOCs will be included in future budget requests as dictated by the operational planning process. The last 5 SOCs are approved at MEDIPP Level 2 which means that further operational planning is needed before they can be considered for inclusion in an Agency budget request. The relative priorities for these five clinics, based on the ranking methodology, are as follows: (1) Ft. Worth, TX; (2) Lawton, OK; (3) San Jose, CA; (4) Austin, TX; and (5) Mount Vernon, MO. Attached is a description of the MEDIPP levels of approval.

A summary of all 12 SOCs follows:

Funds Provided in Agency Budget Request (alphabetically):

Crown Point, IN
Ponce, PR

Approved at MEDIPP Level 3 (alphabetically):

Duluth, MN / Superior, WI
Lufkin / Tyler, TX
Ocean County, NJ
Savannah, GA
Tallahassee, FL

Approved at MEDIPP Level 2 (in rank order based on methodology)

Ft. Worth, TX
Lawton, OK
San Jose, CA
Austin, TX
Mount Vernon, MO

One SOC Pending Approval

Huntsville, AL

DM&S will soon forward a recommendation to the Administrator for establishment of an SOC in Huntsville, AL.

MEDICAL CARE -- OUTPATIENT CARE

Question: You are requesting $2.146 billion for outpatient services next year, an increase of $70,566,000 over your current budget. However, your budget projects a decrease of 113,000 outpatient visits to VA medical facilities - from an estimated 18,788,000 in fiscal year 1987 to 18,675,000 in fiscal year 1988. How much of this proposed decrease is attributable to the Administration's decision not to request funds for care for non-service connected veterans with higher incomes -- so-called Category C veterans?

Answer: The projected decrease in outpatient visits of 113,000 in fiscal year 1988 is the net result of the following factors:

	Visits (000)	$'s (000)
FY 1987 Revised Estimate.....	18,788	$2,075,177
Facility Activations.....	+ 225	+18,971
Drug Bill adjustment.(PL99-570)*	-90	-10,395
Funding elimination for higher income non-service-connected veterans (Category C)	-248	-19,660
Inflation and Payroll Costs	...	+81,650
Subtotal Change.....	- 113	+70,566
FY 1988 President's Budget.....	18,675	$2,145,743

*Resource added in 1987 are non-recurring.

Question: Do your projections for outpatient care take into account the trends of hospitals to discharge patients quicker and follow them through outpatient clinics, as well as the incentive provided through your resource allocation methodology to treat more patients in outpatient rather than inpatient settings?

Answer: Yes, the 1987 workload projections that appear in the budget support the trend experienced in 1986. The inpatient resource allocation model (RAM) also encourages outpatient treatment where medically indicated. Treating more patients on an outpatient basis, when medically appropriate, reflects current medical practice in both the public and private sector.

Question: What savings do you estimate in fiscal year 1988 as a result of shortening hospital stays and treating more patients in outpatient settings?

Answer: No savings are estimated in 1988 due to the shortening of hospital stays and treating more patients in outpatient settings. Although acute inpatients are discharged faster, the number of acute patients treated is increasing. More patients are being seen in inpatient long-term care settings that were previously seen in acute settings. Shorter lengths of stay do not necessarily equate to a cost savings because most of the costs associated with patient care are accumulated near the beginning of an episode of care. Patients seen in acute VA settings are on the average sicker than in past years.

Savings in the amount of $58.3 million and 1911 FTEE are estimated in 1988 for increased productivity, which is the ability

to treat existing workload with less people due to increasing staff productivity.

Question: Will the funds requested for outpatient care be sufficient to provide timely outpatient care to all Category A veterans who request it?

Answer: Yes, the funds included in this budget are estimated to be sufficient to provide timely outpatient services to all Category A veterans who request care.

Question: What portion of the Category B veterans who seek outpatient care at VA do you project you will be able to serve if we give you your budget request?

Answer: The budget as requested also includes sufficient funding to care for all Category B veterans who are expected to seek outpatient care.

MEDICAL CARE--INTERMEDIATE CARE BEDS

Question: According to your budget justification, the only hospital bed section you expect to experience any patient treatment growth from 1987 to 1988 is intermediate care beds. Medical beds will treat 7,900 fewer patients; surgical beds - 6,500 fewer patients; and psychiatric beds -- 700 fewer patients. But intermediate beds will treat about 1,600 more patients. How do you define intermediate beds and how do you differentiate them from nursing home beds?

Answer: In practice, an intermediate bed is defined foremost as a hospital bed. It is for a patient who needs continued hospitalization defined as needing access to diagnostic, laboratory, radiology and other treatment facilities available only in a hospital. The patient requires the presence of a physician 24 hours a day. The nursing home bed is for a stable patient who needs nursing care, not physician care.

The hospital bed sizing model also has a definition of intermediate care that comes from responses to an appropriate location of care survey. The patient is deemed to be an acute care patient if he is said to need the intervention of a health professional at least every 2-4 hours as well as needing diagnostic or treatment evaluations, or is unstable, or requires intervention for safety or psychiatric reasons. This information comes from affirmative answers to specific questions in the survey.

Question: Do intermediate care beds have any counterpart in non-VA hospitals?

Answer: No, there is no comparable bed in the private sector.

Question: What staffing patterns exist in the intermediate bed sections and how do these patterns compare to the acute and nursing home sections?

Answer: Staffing patterns shown in the President's Budget per 100 census are as follows:

Surgery	375
Medicine	295
Intermediate Care	158
Nursing Home Care	129

Question: What criteria will hospital directors use in deciding to convert excess acute care beds to intermediate care beds?

Answer: The conversions will be done on the basis of the patient mix at the particular hospital, as well as other local needs.

Question: How much have you budgeted for conversions from acute to intermediate care beds?

Answer: The 1988 budget does not specifically identify resources associated with the conversion of hospital beds from acute to intermediate care. The shift in hospital bed mix due to conversions is reflected in the overall hospital in-patient resource estimate.

MEDICAL CARE -- TRAVEL FRAUD

Question: How effective has the revised VA Form 70-2323, Certification of Inability to Pay Transportation Costs, been in reducing travel fraud?

Answer: The revised VA Form 70-2323 requires the veteran to complete a detailed questionnaire regarding the income and assets of the veteran, spouse and any dependents. Disclosure of this income information is more accurate than utilizing the old VA Form 70-2323 which simply requested the annual income of the veteran.

There is no method to quantify any reduction in travel fraud since the amount of fraud as a result of the use of the old VA Form 70-2323 is not available.

Question: Are the results quantifiable?

Answer: No.

DISPOSING OF EXCESS VA LAND

Question: Last year, in a response submitted for the record, you indicated that you supported the administration's goals of attempting to raise revenue through the sale of VA property that is no longer needed. You specifically referred to land at the Sepulveda and West Los Angeles Medical Centers. How much revenue did you raise in 1986 through such sales and how much do you plan to make in 1987 and 1988 by selling excess VA property?

Answer: The VA does not have the authority to sell land under its control. The VA does not excess land for the purpose

of generating revenues. Land is excessed only when there is no longer a need to the Agency. If VA land is identified as excess to the VA's needs, the procedures in 38 U.S.C. 5022 are followed, subsequent to which the VA reports the land as excess to its needs to GSA, which has the authority to sell property.

In 1986, the VA did not excess any land and, therefore, no revenues were generated. However, in the future, the VA is planning to excess to GSA the 32 acres at Sepulveda and the 80 acres at West Los Angeles in accordance with the provisions of P.L. 99-576. The estimated site values are $214,000,000 for West Los Angeles and $6,930,000 for Sepulveda.

In addition, in fiscal year 1987, the VA is reviewing four parcels of land for potential excessing. These properties and their estimated values are as follows:

White City, OR	-	2.4 acres	- Unknown
Phoenix, AZ	-	0.25 acre	- $50,000
North Chicago, IL	-	1.9 acres	- $50,000
Minot, ND	-	20.6 acres	- $36,000,000

The property at Phoenix would ultimately be conveyed to the City of Phoenix for a street widening project. The other three sites are scheduled for excessing to GSA for disposal. In accordance with 38 U.S.C. 5022, Congress already has been notified of VA's excessing plans for the North Chicago and Phoenix properties. The VA is currently surveying the Minot property. The White City, Oregon, property was surveyed by the VA in July 1986.

FEDERAL EMPLOYEES RETIREMENT

You are requesting a total of $142,211,000 in 1987 for additional Federal employee retirement costs. These estimates are based on government-wide assumptions regarding numbers of employees participating in the new retirement program and anticipated contribution amounts. However, I would imagine that the pattern of participation in the new system would vary widely from agency to agency based on average years of service and so forth.

Question: Can you tell us if your internal estimates of the costs of the new retirement system agree with the estimates OMB reached on the basis of a government-wide analysis?

Answer: The VA estimate for the new retirement system (FERS) included an adjustment for the actual number of employees hired since January, 1984 (who are automatically converted in the FERS program). This number was higher than the percentage of employees projected in the formula used throughout the Executive Branch in developing the estimated costs. This actual was accepted by OMB in the development of the cost; therefore, our estimate is in agreement with the OMB estimate.

READJUSTMENT BENEFITS EDUCATION OVERPAYMENTS

Question: General Turnage, you are requesting an appropriation of $625.7 million for Readjustment Benefits in this coming fiscal year. This is $115.4 million below the current budget and reflects a reduction in the number of Vietnam-era veterans receiving educational benefits. I have a few questions regarding the issue of educational overpayments based on additional data provided by your staff. There's so little mention of this important activity in your budget justifications that I directed my staff to get more details. I's appreciate it if future justifications included more data. What I'd like to see is a page showing the status of your overpayment debt collection activities similar to the information my staff received from your budget office. Can you include that information in next year's justifications?

Answer: Yes we can include that information in next year's justifications.

Question: The table supplied to the staff indicates that you wrote off over one-third of your readjustment benefit debt last year. That's one way to deal with the problem, but a very unsatisfactory solution. Why did you write-off such a massive amount of debts in one year?

Answer: At the time of the write-off, education debts comprised 69% of our delinquent debt file. The majority of those debts had been reactivated from a terminated status when the VA began charging interest and administrative costs and were over ten years old. Due to the age of the debt we could not litigate, refer it to credit reporting bureaus or refer it to IRS for income tax refund offset. All collection efforts had been exhausted and no activity had occurred on these debts for over a year.

Question: You estimate a current collectible debt of $391,627,000 in education overpayments but project collections of about $80 million. While that's slightly better than last year's collections, it represents only about one-quarter of the total. Why can't you do better in view of the fact that you've apparently written-off all your hard core debtors?

Answer: The estimate of $80 million was based on current collection experience and the assumption that as the number of trainees decreases, collections will also decline as a portion of all collections result from offsetting benefits of active trainees. The debts written off were all over ten years old and had no activity on the account for over one year. All collection efforts had been exhausted. The write-off of those accounts would not have a direct effect on the collection of existing or new accounts.

Question: You estimate collectible debt of $360,427,000 in 1988 and plan to collect only $72 million, just a little under 20%. How did you arrive at that figure:

Answer: The $72 million was based on several factors including the age of the debt portfolio, current collection experience and the expected reduction in the number of trainees in the education program. Since a portion of overall collections result from offsetting benefits from active trainees, a reduction in training would directly affect collections.

Question: Can you tell us briefly the extent to which you are using private collection agencies and credit bureau referrals to encourage the repayment of outstanding debt?

Answer: Debtors are warned of possible referral to credit bureau's in both our second and third collection letters. If debtors do not respond to our notices, they are referred to a credit bureau 60 days after the release of the third collection notice. At that time they are notified that they have been referred and they should contact us as soon as possible to arrange repayment in order to protect their credit rating. In the case of private collection agencies, only seriously delinquent debts (over 1 year old) are being referred for collection.

DHCP

Question: I understand that you believe the DHCP program can be fixed to significantly reduce the risk that it won't achieve its goals. How much more will it take to fix the DHCP so as to make it equivalent to vendor off the shelf services?

Answer: In their study comparing DHCP with IHS, Booz-Allen identified aspects of the current DHCP program that they felt needed improvement. Their recommendations, like those of the earlier IG and GAO reviews of DHCP, stressed the need for management improvements, increased structure over the development process, and the need for additional staff support. We have initiated steps that address these recommendations and will greatly strengthen the program. We should emphasize, however, that we are not trying to replicate the vendor products nor do we think a commercial acquisition approach is inherently less "risky". A great strength of the DHCP is that it is underway, it is working and it has gained widespread acceptance and commitment from its users. To abandon it now and go back very nearly to "square one" with a commercial acquisition approach would be extremely demoralizing and disruptive to the end users. It would also embroil VA management in a whole new set of problems including the need for vastly increased funding, the whole range of uncertainties associated with starting over, and the specter of operating with an essentially lame duck DHCP system during the lengthy transition period.

We are not attempting to provide the equivalent of commercial systems with DHCP. As with other applications of technology we do not consider the DHCP as an end in itself. The DHCP "no frills" approach uses automation appropriately as a means to maintain our high standard for quality care. We should not lose sight of the

fact that responsible public policy dictates that we select the right tool for the job and apply resources where they will have the most impact. It is important to note that, despite a difference in cost of $777 million for DHCP versus $1.5 billion for IHS, Booz-Allen could find no evidence of differences in outcomes. That is, quality of health care and service appeared to be improved to the same degree under either DHCP or IHS but under DHCP this improvement in health care clinical staff quality and productivity was achieved at lower cost.

Question: Would you please provide for the record a line item breakdown of these costs, and the DHCP full life cycle costs. These should include:

- Personnel pay and benefits
- Medical Information Resources Management Office
- Regional Information Systems Centers
- Hardware
  --ADP purchases
  --ADP maintenance
- System software
- Site preparation
- Operating supplies (including ADP recording media)
- Program travel
- System analysis and programming
- Other
- Total

Answer: The attached System Life Cycle Costs include ten year costs for Initial/Full Core, ten year costs for the currently approved Enhanced DHCP functions (Radiology, Dietetics, Medical Records Tracking, Fiscal/Supply, Surgery, Decentralized Medical Management System, Nursing, and Mental Health), and the cumulative costs of MIRMO resources devoted to DHCP. Not included are inflationary increases in the out years or equipment replacement projections beyond the ten year life cycle.

Attachment

D H C P LIFE CYCLE COST ESTIMATES - INITIAL AND FULL CORE (000) MARCH 14, 1987

SUB-ACCOUNT	DESCRIPTION	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	TOTAL
----	VAMC FTEE *	(33)	(68)	(163)	(395)	(323)	(323)	(395)	(395)	(395)	(395)	(395)
1096	VAMC PAY & BENEFITS	870	1,794	4,300	8,084	7,556	7,971	10,733	10,733	10,733	10,733	73,507
1096	VAMC FRINGE BENEFITS	240	495	1,187	2,230	2,085	2,200	2,962	2,962	2,962	2,962	20,287
----	ISC FTEE *	(95)	(127)	(127)	(182)	(147)	(147)	(210)	(210)	(210)	(210)	(210)
1096	ISC PAY & BENEFITS	3,003	4,016	4,016	4,465	4,122	4,348	6,839	6,839	6,839	6,839	51,326
1096	ISC FRINGE BENEFITS	829	1,108	1,108	1,232	1,139	1,200	1,888	1,888	1,888	1,888	14,165
2103	PROGRAM TRAVEL	665	1,280	1,188	874	1,574	1,574	1,443	1,443	1,443	1,443	12,927
2104	TRAINING TRAVEL							41	41	41	41	164
2514	SYS ANAL & PROG	182			114	1,320	1,188	1,188	1,188	1,188	1,188	7,556
2544	ADP MAINTENANCE			5,779	8,837	8,087	8,087	8,087	8,087	8,087	8,087	63,138
2580	MISC CONTRACTS	90	90	213	1,127	222	222	426	426	426	426	3,668
2583	TRAINING - FED		622	1,113				102	102	102	102	2,143
2584	TRAINING - COM				41	88	88	168	168	168	168	909
2623	RECORDING MEDIA			2,004	1,997	1,990	1,505	200	200	200	200	8,296
2624	SOFTWARE			528	378	70	70	528	528	528	528	3,158
2660	OPERATING SUPPLIES		2,413	3,098	1,970	1,189	1,189	3,335	3,335	3,335	3,335	23,199
3123	ADP EQUIPMENT	25,396	32,324	18,029	7,324	528	578	578	578	578	578	86,491
----	SITE PREP	1,440	23,557	5,259								30,256
	TOTAL	32,715	67,699	47,822	38,693	29,968	30,221	38,518	38,518	38,518	38,518	401,190
	CUMULATIVE	32,715	100,414	148,236	186,929	216,897	247,118	285,636	324,154	362,672	401,190	

NOTE - TOTALS MAY VARY SLIGHTLY DUE TO ROUNDING

- FY 87 & FY 88 HAVE BEEN ADJUSTED TO AGREE WITH THE BUDGET SUBMISSION EXCEPT FOR FRINGE BENEFITS

- FRINGE BENEFITS COMPUTED AT 26.7% OF PAY & BENEFITS VS THE 12.5% INCLUDED IN THE BUDGET SUBMISSION

* - FTEE ESTIMATES WILL CHANGE AS IRM STAFFING GUIDELINES ARE DEVELOPED AND APPLIED

D H C P LIFE CYCLE COST ESTIMATES - ENHANCED (000) MARCH 14, 1987

SUB-ACCOUNT	DESCRIPTION	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL
----	VAMC FTEE *	(72)	(72)	(154)	(154)	(154)	(154)	(154)	(154)	(154)	(154)	(154)
1096	VAMC PAY & BENEFITS	1,684	1,777	4,184	4,184	4,184	4,184	4,184	4,184	4,184	4,184	36,937
1096	VAMC FRINGE BENEFITS	465	490	1,155	1,155	1,155	1,155	1,155	1,155	1,155	1,155	10,195
----	ISC FTEE *	(35)	(35)	(51)	(51)	(51)	(51)	(51)	(51)	(51)	(51)	(51)
1096	ISC PAY & BENEFITS	981	1,035	1,661	1,661	1,661	1,661	1,661	1,661	1,661	1,661	15,304
1096	ISC FRINGE BENEFITS	271	286	458	458	458	458	458	458	458	458	4,224
2103	PROGRAM TRAVEL		356	1,125	1,125	1,125	1,125	1,125	1,125	1,125	1,125	9,356
2104	TRAINING TRAVEL			37	37	37	37	37	37	37	37	296
2514	SYS ANAL & PROG											0
2544	ADP MAINTENANCE	4,721	6,946	10,125	10,125	10,125	10,125	10,125	10,125	10,125	10,125	92,667
2580	MISC CONTRACTS		87									87
2583	TRAINING -FED			279	92	92	92	92	92	92	92	923
2584	TRAINING - COM		292	80	20	20	20	20	20	20	20	512
2623	RECORDING MEDIA			742	212	212	212	212	212	212	212	2,226
2624	SOFTWARE		426	526	526	526	526	526	526	526	526	4,634
2660	OPERATING SUPPLIES		2,279	3,124	3,124	3,124	3,124	3,124	3,124	3,124	3,124	27,271
3123	ADP EQUIPMENT	35,018	20,177	26,488	574	574	574	574	574	574	574	85,701
----	SITE PREP	20,000										20,000
	TOTAL	63,140	34,151	49,985	23,294	23,294	23,294	23,294	23,294	23,294	23,294	310,333
	CUMULATIVE	63,140	97,292	147,276	170,570	193,864	217,158	240,451	263,745	287,039	310,333	

NOTE - TOTALS MAY VARY SLIGHTLY DUE TO ROUNDING

- FY 88 HAS BEEN ADJUSTED TO AGREE WITH THE BUDGET SUBMISSION EXCEPT FOR FRINGE BENEFITS

- FRINGE BENEFITS COMPUTED AT 26.7% OF PAY & BENEFITS VS THE 12.5% INCLUDED IN THE BUDGET SUBMISSION

* - FTEE ESTIMATES WILL CHANGE AS IRM STAFFING GUIDELINES ARE DEVELOPED AND APPLIED

DHCP LIFE CYCLE COST ESTIMATES
VACO MAMO&S SUPPORT ($000)
MARCH 14, 1987

FISCAL YEAR	FTEE	PAY & BENEFITS	FRINGE BENEFITS	TRAVEL	TOTAL	CUMULATIVE
1983	(21)	664	183	90	937	
1984	(21)	664	183	90	937	1,875
1985	(14)	443	122	60	625	2,500
1986	(15)	474	131	60	665	3,165
1987	(16)	521	144	60	725	3,890
1988	(18)	586	162	60	808	4,698
1989	(20)	651	180	85	916	5,614
1990	(20)	651	180	85	916	6,530
1991	(20)	651	180	85	916	7,446
1992	(20)	651	180	85	916	8,362
1993	(20)	651	180	85	916	9,278
1994	(20)	651	180	85	916	10,195
1995	(20)	651	180	85	916	11,111
1996	(20)	651	180	85	916	12,027
TOTAL		8,563	2,363	1,100	12,027	

NOTE - TOTALS MAY VARY SLIGHTLY DUE TO ROUNDING

DHCP LIFE CYCLE COST ESTIMATES
($000)
MARCH 14, 1987

FISCAL YEAR	FULL CORE	ENHANCED DHCP	MAMOE SUPPORT	TOTAL	CUMULATIVE
1983	32,715		937	33,652	33,652
1984	67,699		937	68,636	102,288
1985	47,822		625	48,447	150,735
1986	38,693		665	39,358	190,093
1987	29,968	63,140	725	93,833	283,926
1988	30,221	34,151	808	65,180	349,106
1989	38,518	49,985	916	89,419	438,525
1990	38,518	23,294	916	62,728	501,253
1991	38,518	23,294	916	62,728	563,981
1992	38,518	23,294	916	62,728	626,709
1993		23,294	916	24,210	650,919
1994		23,294	916	24,210	675,129
1995		23,294	916	24,210	699,339
1996		23,294	916	24,210	723,549
TOTAL	401,190	310,334	12,025	723,549	

NOTE - TOTALS MAY VARY SLIGHTLY DUE TO ROUNDING

HEALTH PROFESSIONAL SCHOLARSHIP PROGRAM

Question: On page 7-13 of your justification, you resurrect an initiative to provide health professional scholarships for recruitment of nurses, physicians and other health care professionals. For the record would you please indicate how these funds will be distributed between the varying types of professionals?

Answer: Funds appropriated in FY 1988 will be used to provide awards to nursing and physical therapy students. $4.5 million for nursing students and $1 million for physical therapy students. Of the estimated 295 awards, 240 will be for nursing students and 55 for physical therapy students. Approximately 211 of the estimated 295 (72 per cent) will be one year awards. The remaining 84 (28 per cent) will be two year awards.

Question: The intent of this program is to ensure a continuing stream of professionals into the VA medical care community. Please indicate for the record what professionals, and what level (paygrade & duties)of these professionals are in greatest shortage.

Answer: The Health Professional Scholarship Program for Fiscal Year 1988 will be directed at nursing and physical therapy. These two occupational groups continue to present recruitment and retention problems. Shortages for Registered Nurses are most severe in critical care and operating room areas. Nurses in these specialized categories are typically in the full and intermediate grades. Within the pay ranges for these grades, it is particularly difficult to recruit at the entry levels. The full performance level for Physical Therapists is GS-9. We are experiencing difficulties recruiting physical therapists at entry (GS-7) and full performance levels.

Question: Please indicate for the professionals for which you have shortages, what most accounts for these shortages; to include relative pay scales, opportunity for advancement, competition for potential professionals by other professionals during the educational process.

Answer: Pay is one of several factors affecting VA's inability to attract and retain nurses and physical therapists. Fringe benefits are generally competitive with those in the private sector. In some locations and for some occupations, benefits such as tuition assistance programs and child care facilities offered by the private sector also affect our ability to compete. In addition, the demand for health care professionals exceeds the supply in some communities, which increases competition between health care providers in these shortage category occupations for both private sector and Federal facilities.

Question: On page 7-13, you show that you will need 9 people to manage your scholarship program, at a cost of half a million dollars. This appears to be a very high staffing level. Would you provide for the record a comparison of this with other scholarship granting organization to demonstrate the need for this many people?

Answer: Other scholarship granting organizations that could be compared with the VA Scholarship Program regarding VA's request for 9 FTEE and $0.5 million for administrative costs are:

- National Health Service Corps Program now in phase-down has $2.3 million and 20 FTEE.
- Indian Health Service Program requests $5 million and 9 FTEE.

Nine FTEE and $0.5 million seems appropriate for the VA Scholarship Program because of expansion from only nursing students to include another discipline, physical therapy. This will increase activities such as receiving and processing applications, making awards, monitoring participants during academic programs, making service obligation placements at VAMCs, and monitoring participants during service obligation.

ACCOUNTS RECEIVABLES AND DEBT COLLECTION

The Veterans Administration has reported that as of September 1986, it had about 500,000 active accounts receivables totaling about $316 million in educational assistance debts under collection by the Centralized Accounts Receivable System. The Committee would like to know what VA is doing to prevent the occurence of education related accounts receivables as well as to recover current receivables.

Question: What actions has VA taken during the past year to reduce the occurence of receivables?

Answer: The VA established a taskforce to research the major causes of overpayments in the education program and determine if steps can be taken to reduce or prevent the creation of overpayments. The assessment has been completed and the recommendations are currently under review.

Question: The Committee would like to have the following information on your education receivables activity during the past year.

Number and volume of receivables.
Number and value of cash collections.
Number and value of debts which have been paid in full.
Number and value of debts written-off.
Number and value of debts referred to commercial credit bureaus.

Answer: The information requested is provided below:

*Number and volume of receivables:

	Number	Dollar Value
Start of Fy 1986	870,661	$521,994,000
Esbablishment	140,637	$ 79,239,000
Collections	Not Available	$ 97,129,000
Write-offs	240,000	$178,777,000
End of FY 1986	506,523	$325,327,000

*Number and value of cash collections

Figures regarding number and total dollar value of cash collections are not available. However, total collections which includes cash collections and offsets totalled $97,129,000.

*Number and value of debts which have been paid in full

Approximately 72,000 accounts were paid in full during FY 1986. The related dollar value is not available.

*Number and value of debts written-off

Approximately 240,000 accounts valued at $178,777,000 were written off during FY 1986.

*Number and value of debts referred to commercial credit bureaus

Approximately 108,000 accounts valued at $104,743,000 were referred during FY 1986.

Question: Please discuss any actions VA has taken or is planning to take which will improve its ability to collect accounts receivables in the future.

Answer: VA implemented the referral of delinquent debts to credit reporting agencies in January 1986. This will adversely affect a debtor's credit rating if the debt remains unpaid. We also participated in IRS Income tax refund offset program for tax year 1985 and collected $8.3 million as a result. For tax year 1986, we referred approximately $390 million in delinquent debt to IRS for income tax refund offset. Through the first five weeks of the tax year, we have collected $11.7 million. The VA implemented the Federal Salary offset program in January 1987. This program allows the offset of a federal employee's salary if the debt is not repaid. Computer matches are being initiated with the Department of Defense, OPM and Postal Service to identify indebted federal employees. VA employees have already been notified. The VA also installed a toll-free telephone number in our Centralized Accounts Receivable Division to allow the debtor to call regarding repayment of the debt. We are currently in the process of developing a call-out unit to contact debtors. We are also proposing a telephone test which uses an automated dialing system to call the debtor and play a prerecorded message. This message will advise the debtor to contact us on our toll-free number the following day. We feel if we can contact the debtor, repayment arrangements can be made. The VA began referring seriously delinquent debts to private collection agencies in FY 1986. We referred debts totalling $425 million to private collection agencies. Collections to date total approximately $3.4 million. We are also continuing to centralize as much of the debt as possible in our Centralized Accounts Receivable System to take advantage of the automated collection process.

Question: The Committee would like to have the following information on debts referred to the VA District Counsel for Collection.

Number and value of accounts referred to the District Counsel.
Number and value of cash collections.

Number and value of accounts that have been paid in full.
Number and value of accounts that have been waived.
Number and value of judgments obtained.
Number and value of judgments dismissed.
Number and value of judgments pending.

Answer: Regarding the education debts contained in the Centralized Accounts Receivable System, the following information concerning referrals to VA District Counsels is provided:

*Number and value of accounts referred to VA District Counsel.

VA referred 30,998 accounts valued at $21.8 million during FY 1986.

*Number and value of accounts that have been paid in full

11,019 accounts were paid in full during FY 1986. The dollar value is not available.

*Number and value of accounts that have been waived.

27 accounts valued at $22,544 were waived during FY 1986.

*Number and value of judgments obtained.

A breakdown of the number and value of judgments obtained on education accounts is not available. However, the total number of judgments obtained for FY 1986 was 19,981 for a value of approximately $14.4 million.

*Number and value of judgments dismissed.

The breakdown for education accounts is not available. However, the total number of suits dismissed for FY 1986 was 14,229 for a value of approximately $9.9 million (Note: Judgments are not dismissed, suits are dismissed prior to judgment.)

*Number and value of judgments pending.

The breakdown for education accounts is not available. However, the total number of suits pending is 58,237 for a value of approximately $40.7 million (Note: Cases pending include those filed in prior year)

Questions Submitted by Senator Garn

MEDICAL CARE

Question: The largest portion of the VA budget within the "discretionary" category of federal spending is Medical Care. Frankly, this Committee has repeatedly tried to find means to reduce spending but in the Medical Care account, has been frustrated by a widespead acceptance that personnel count is the only means to measure the adequacy of care for eligible veterans.

Can you outline how you view the issue of quality medical care ought to be approached and evaluated by this Committee? What relevance do you give to personnel numbers in analyzing this issue?

Answer: As suggested by the nature of the question, the issue of quality of care, whether it be concerned with the Veterans Administration's health system or some other system or individual institution--or even a single provider, is exceedingly difficult to measure. Recent Congressional interest in making public some general data associated with VA hospital-specific mortality and morbidity rates is but the beginning of public policymakers' increasing attention to quality issues. As regards the Committee's concerns about personnel counts themselves as a measure of quality, it is our view that a strict association between numbers of staff and quality of care in inappropriate. It is important to bear in mind that increased staffing levels do not automatically equate to increased quality of care delivered. In fact, holding to an artificially derived optimum staffing level may work counter to high quality medical care by dictating an unbalanced system. We believe a number of other indicators are more important in assessing overall quality of care in a medical institution. A strong and interactive credentialing program is one very effective means of establishing the minimal quality of practice standards expected. Establishing a thorough set of clinical criteria and standards is another assurance that programs across the nation meet minimal quality and consistency levels. A patient's satisfaction with the care received is a crucial indicator of quality, so a carefully developed patient satisfaction program is essential, particularly in a multi-institutional system. The Department's efforts to ensure adequate numbers of well trained, experienced, and highly competent VA care givers should be seen as evidence of only one facet of its commitment to manage the quality of care made available for veterans throughout the VA system.

As to the Committee's specific question on how quality medical care ought to be approached and evaluated by the Committee as it examines the Department's budget needs, we would offer the following suggestions, in addition to the points above, for consideration: the continuing and accelerating reduction in average length-of-stay in VA inpatient care, and the concomitant growth in ambulatory and other, non-bed alternatives to inpatient programs; the commitments we have made within the Executive Branch to produce specific improvements in overall direct care productivity; and the Department's management and productivity improvement plans to evaluate the efficiency of "commercial" and "indirect care" activities, and to conduct specific cost-comparisons for some non-care functions under OMB Circular A-76. In supplementation to

the indices being developed within the MEDIPRO effort (see below), these indicators can aid the Committee's understanding of the Department's intention to provide high quality VA services in a cost effective manner.

The Department is in the midst of developing and refining systems to monitor the quality of medical care. The information provided to the Congress in response to the requirements of Public Law 99-166 for reported surgical mortality and morbidity, is but one reflection of these efforts. A much broader range of information is becoming increasingly available to Departmental managers as a product of the Medical District Initiated Peer Review Organization (MEDIPRO) initiative and other information-producing mechanisms and processes. The MEDIPRO program has undergone pilot testing and full implementation began in October 1986. The results of the first full year of operation will be available toward the end of 1987. In the meantime, the clearest evidence of VA's record of providing high quality care is the continuing accreditation by the Joint Commission on the Accreditation of Hospitals (JCAH) of each of the system's 172 facilities. The JCAH evaluative process takes into account many of the indicators mentioned here in arriving at individual medical center accreditation decisions.

Question: The Administration has proposed the rescission of $75,000,000 for "medical care" associated with care provided for class C veterans - i.e. those whose medical needs are not service connected and who are in the higher income brackets. How does VA expect to allocate these reductions among the medical facilities?

Answer: The Agency has been instructed not to make a proposed distribution of the $75,000,000 reduction. However, if we were to do so, we would rely on data presently available and on additional surveys, as necessary, to determine the Category C distribution by facility, and then make proportional reductions in facility operating funds. In reducing available funding, we would take into consideration the facility mission, workload, affiliation status, degree of isolation, program balance, etc., before taking action.

ADVANCED TECHNOLOGY EQUIPMENT

Question: Last year this Committee instituted a cost-sharing program for the acquisition of advance technology equipment in conjunction with medical schools. Please describe how this pilot program is processing.

Answer: The program has attracted wide attention of both the professional and public press. Even at this early date, the increased visibility of the VA in the community and heightened public relations are clearly evident. The procurement process, except for final delivery and installation, has progressed smoothly. Timely execution of shared use or mutual use agreements have established firm understandings of each partner's responsibilities in their "joint ventures." All indications are for productive relationships throughout.

Due to long lags in site preparation time, delays in equipment delivery, installation, and testing only one facility is yet in operation. Data from that single facility, in full function

approximately two months, do not constitute adequate experience on which to base an evaluation of the program cost effectiveness ratio. Progress and evaluation reports will be provided to the Congress as sufficient data are accumulated.

VETERANS JOB TRAINING

Question: Your budget estimates indicate that less than half of the Veterans Job Training enrollees complete this program. This strikes me as being a high percentage since the Federal Government is contributing up to half of enrollees salaries. What data do you have as to the program's success rate and effectiveness...also as compared to comparable programs of the Department of Labor.

Answer: The report by Centaur Associates, Inc., "Evaluation of the Veterans' Job Training Program," published September 24, 1986, includes information about the impact of the program. Among the findings of the report are the following:

- About 40 percent of participants complete their training and 60 percent do not.

- Reasons for noncompletion were reported to VA from the standpoint of employers and were reported to the evaluation contractor from the standpoint of veterans. Veterans and employers agree that about one-half of the VJTA dropouts left their employers voluntarily. There is somewhat less agreement about involuntary terminations, but it appears that about two-fifths of VJTA dropouts were either laid off or fired. The balance of the dropouts left for other reasons, such as health.

- Blacks are significantly less likely to complete their training than those in other racial/ethnic categories.

- Participants with longer civilian workforce experience are significantly more likely to complete their training than those with shorter periods of civilian labor force experience.

- Participants with higher family incomes prior to application are significantly more likely to complete their training than those with lower family incomes.

- Participants with higher individual incomes prior to application are significantly less likely to complete their training than those with lower individual earnings.

- Participants with nonservice related disabilities are significantly less likely to complete their training than those without such disabilities.

- Participants who received higher wages during training are significantly more likely to complete their training than those receiving lower wages.

- About 16 months after completion of Veterans Job Training Act (VJTA), approximately 50 percent of veteran completers (i.e., 20% of those that begin training) still are employed by their training organizations.

- About 31 percent of the veteran completers who are retained by their training organizations (6% of those that begin training) have been promoted since completing training.

- Program participants, including both completers and noncompleters, gained about $2,200 in annual earnings during the year following their training over what it is estimated would have been earned absent program participation.

- Program completers received an average wage of $6.60 per hour during training.

Titles IIA and III of the Job Training Partnership Act administered by the Department of Labor (DOL) provides training and placement funds to educational organizations, unions, private industry councils and other groups to help economically disadvantaged adults and youth train for jobs and also aid workers who lose jobs because of plant closings and layoffs. Data for the most recent program year ending June 30, 1986, show that 70 percent of the economically disadvantaged adults who completed a program under title IIA were placed in jobs. Some 62 percent of those in title IIA who were receiving public assistance also found jobs or had other positive outcomes (57 % jobs; 5% other positives) after leaving training. A General Accounting Office survey found that the title III program for dislocated workers resulted in new employment for 69 percent of the program participants with an average starting wage of $6.61 per hour.

LOAN GUARANTEE FUND

Question: VA charges a 1% home mortgage guarantee premium vs the 3.8% currently assessed by FHA. I understand that the FHA fee was established by estimating the likely costs associated with the loan guarantee - while the VA program fee reflects a preferential entitlement flowing from military service. The Administration, however, is proposing that the VA fee be raised to 2.5%. What data do you have on the full value (or cost to the Government) that this loan guarantee is actually worth?

Answer: The increased funding fee is necessary to offset substantial losses due to the foreclosure of guaranteed loans. The costs of these foreclosures to the Veterans Administration (VA) have been substantial. Since FY 1978, over $2 billion in appropriations and transfers from other accounts have been necessary to meet expenses of the Loan Guaranty Revolving Fund. The proposed 2.5 percent funding fee is based on estimated foreclosures over the next 5 years. Although we expect some improvement in the foreclosure rate, all evidence available to us indicates that GI loan terminations will remain high (compared with the 1970's). The increase in funding fee will generate sufficient revenue to the revolving fund to avoid appropriations during this period.

We have analyzed the cost to the government (full value) of the VA's loan guaranty. This analysis compares the cost of obtaining a conventional mortgage loan comparable to VA's GI loan. We found that the most similar conventional loan is a 5-percent (minimum) downpayment loan insured by a private mortgage insurance company. There are no conventional no-downpayment loans available in the mortgage market. Our review shows that the present value of the required private mortgage insurance premium is between 5 to 6 percent of the loan amount. Therefore, this represents the full value or cost of the VA's loan guaranty.

Question: How much additional revenue would be generated by this additional fee?

Answer: The Administration is proposing to increase the funding fee from 1.0 percent to 2.5 percent effective June 1, 1987. This legislation is expected to generate an additional $91 million in 1987, and $360.8 million in 1988 in funding fee income.

Question: On what basis do you believe that such a rate increase would have limited impact on program demand?

Answer: The VA's FY 1988 budget submission estimates that the increased funding fee will reduce demand for GI loan financing by less than 5 percent in each fiscal year. We believe that almost all of the fall off in loan originations would result from higher income veterans who have alternative mortgage financing opportunities available to them. Some of these veterans may elect to make a downpayment on a conventional loan in lieu of paying the increased fee. A very high percentage of veterans have been financing the funding fee. At the current maximum home loan interest rate of 8.5 percent, on an average home loan of $75,000, the veteran's monthly payment would increase by less than $9. Lower income veterans buying less expensive homes or mobile homes would pay even less. Because monthly payments increase by such small amounts relative to the total monthly payment, it is difficult to see how the increased fee would deny many veterans an opportunity to use their home loan entitlement.

HOMELESS VETERANS

Question: The recently enrolled "Homeless Supplemental" established a $5 million set aside for Homeless Veterans. Please describe this program and your plans to implement it.

Answer:

A. Purpose: The Mental Health and Behavioral Sciences (MH&BS) Service, in collaboration with Social Work Service, Readjustment Counseling Service and Nursing Service, is requesting demonstration project applications from VA field facilities focusing on assessing and placing homeless chronically mentally ill (CMI) veterans in appropriate therapeutic contract care facilities as required by Public Law 100-6. These proposals may be descriptions of existing,

expanded or newly created VA efforts targeted to these populations and integrated into existing coalitions of public agencies and voluntary organizations which address the problems of homeless CMI veterans in urban or rural areas.

Each project will be an integral clinical component of a VA medical center Psychiatry Service. There will be a project team of VA clinician(s) consisting of a psychiatric social worker, psychiatric clinical nurse specialist or other health care professionals with appropriate skills. The project team will report to the Chief, Psychiatry Service for patient care issues, and will coordinate community development activities with the Chief, Social Work Service and will coordinate professional efforts and other program activities with appropriate professional and administrative service chiefs such as Nursing, Social Work, Psychology, Medical Administration, Fiscal and Supply as well as Vet Center team leaders.

There are to be four major components to these efforts:

1. Proposals must be integrated with an existing urban or rural coalition of public agencies and volunteer organizations working with the homeless.

2. The VA must engage homeless chronically mentally ill veterans residing temporarily in shelters or in the streets to enable them to receive basic health care needs from the local VA medical center. Such outreach efforts will be provided by VA professionals hired through the demonstration project, by VA medical center or vet center personnel already performing these functions, or by other existing community outreach workers.

3. VA Central Office will provide funds for contracted placement of these veterans in mutually acceptable community-based psychiatric residential treatment settings for extended periods of time.

4. The project proposals must include a minimal evaluation design which will be part of the proposal. This evaluation design will be reviewed and may be modified and possibly incorporated into an overall system-wide project evaluation study.

B. Demonstration Project Proposals: Each medical center proposal will address the following issues:

o Present a strategy for integrating the VA effort for chronically mentally ill veterans into an existing community, rural, city or state consortium working with the homeless.

o Describe specific on-site efforts needed to initiate contacts with the homeless veteran. Case finding and treatment personnel will function primarily as case managers for eligible veterans in to shelters, in the streets as necessary, and in contracted community residential treatment facilities.

o Describe facilities that will be available in the community to provide contracted residential treatment capabilities responsive to the particular needs of this population. The facilities may be

halfway houses or supervised group homes linked with rehabilitation and resocialization day programs. The Community Program staff who are currently providing services to the homeless population should be able to help identify appropriate existing settings. These settings must meet VA standards. Draft standards have been provided to the field as preliminary guidance and may be subject to modification prior to final concurrence and approval. Given the treatment focus of this effort, the Community Residential Care (CRC) facilities in which veterans are placed at their own expense (and which VA inspects) are excluded from participation in this demonstration project.

o Describe how the program will be integrated within the VA medical center particularly focusing on the resources available to provide comprehensive psychiatric and medical workups for the homeless chronically mentally ill veterans.

Additional considerations will include:

o The potential number of homeless veterans to be served.

o The degree of interest expressed by the medical center leadership team and the participating community coalition.

o The rapidity with which the program could be initiated.

o Creative innovations which would enhance the value and effectiveness of the proposal.

o Extent to which integration with other existing programs and agencies will improve the quality and/or breadth of services offered.

o Development of statistical data and a tracking system to monitor the demonstration project activities including demographic information about the homeless veterans serviced, referral and treatment service offered.

C. Contracting

A contract mechanism is being developed under which VAMC's selected to participate in this program may evaluate and select appropriate community-based entities as contract providers. General guidelines are being developed to provide instructions for outreach, determination of eligibility, and placement of homeless chronically mentally ill veterans under this program.

Question: The Veterans Affairs Committee of the Senate has ordered reported a bill which directs VA to turn over real property acquired under the loan guarantee program for shelters for the homeless. What impact do you see this legislation having and what concerns do you have with it?

Answer: We do not oppose the concept of making certain VA-acquired properties available to entities which will use them to provide shelter for homeless veterans. The program should be administered with sensitivity to the views of the veteran community at large and to the views of residents in affected neighborhoods.

The properties selected for the program should be located in more centralized areas near existing community services which support homeless persons. In order to avoid needless loss of income to the Loan Guaranty Revolving Fund, the properties should have little or no net realizable value to the VA. In order to avoid diverting excessive resources from our existing property sales efforts, the administrative requirements of the program on the VA should be minimized. The VA must maintain discretion to choose which properties should be made available to the homeless.

If the above principles are maintained, we believe that there will be little or no adverse impact on the Loan Guaranty Revolving Fund. Our principal concern with the bill lies in the provisions for continued VA involvement with the properties following transfer to appropriate entities. Since the properties will already have been determined to have little or no net value to the VA, our conveyance of the property to qualifying entities should conclude the VA's involvement with the properties--without any subsequent notice of sale, right of first refusal, right of reverter or other subsequent monitoring functions.

Questions Submitted by Senator Domenici

VA BENEFICIARY TRAVEL

Background:

Under current law, service connected disabled veterans, veterans in receipt of VA pension benefits and other veterans presenting evidence of the inability to pay the cost of transportation are eligible for beneficiary travel benefits.

The benefit is in the form of reimbursement and can be made for any form of transportation.

For FY 1987, the VA requested and received $10 million for this program, a decrease of $96 million from the FY 1986 level. The VA intended to achieve these savings by restricting benefits to emergency and special mode transportation.

However, the VA has not issued final regulations implementing these changes. This necessitated a $58 million realignment of funds in order to operate the program under current policy. An additional requirement of $10 million is anticipated.

For FY 1988, the Administration assumes the regulations to restrict travel will be operational.

BENEFICIARY TRAVEL
(obligations in $000s)

FY 1985	FY 1986	FY 1987	FY 1987 REV	FY 1988
98,284	106,559	10,000	68,000	51,850

Question: The VA is drafting regulations that would restrict reimbursements for beneficiary travel to emergency travel or special mode of transportation, such as wheelchair vans.

When will the regulation be finalized and operational?

Answer: The VA amended and published its medical series of regulations on March 12, 1987, to authorize beneficiary travel payments to eligible veterans when specialized modes of transportation, such as ambulance or wheelchair van, are medically indicated. In addition, travel in conjunction with compensation and pension examinations for those who meet current beneficiary travel eligibility requirements will be authorized as well as travel beyond a 100-mile radius from the nearest appropriate VA medical care facility.

Anticipated effective date is April 13, 1987.

Question: What categories of veterans will be eligible for benefits?

Answer: There has been no change in the categories of veterans eligible for this benefit, they remain:

(1) Service-connected veterans (including veterans rated zero percent SC)

(2) Veterans receiving VA pension unde: the provisions of 38 U.S.C. 521.

(3) Any beneficiary whose annual family income is less than or equal to the maximum appropriate annual base rate of VA pension which would be payable if he or she were eligible for VA pension under 38 U.S.C. 521.

Question: How many travel payments will be eliminated as a result of these regulations?

Answer: Emergency transport, special mode transport, interfacility transfers, and compensation and pension examinations constitute approximately 52% of the beneficiary travel expenditures. Veterans who need to travel by those modes are still eligible for VA travel payment. This leaves 48% dedicated to travel reimbursements. The amended regulations limit such travel reimbursement to travel performed beyond a 100-mile radius from the nearest VA medical care facility. Various studies show that 3% of the total veteran population reside in remote areas (100 or more miles distant from a VA medical care facility). Therefore the VA expects to eliminate 45% of the travel payments associated with this program.

Question: For what categories of veterans will they be eliminated?

Answer: All categories of veterans who live within a 100-mile radius from the nearest appropriate VA medical care facility will be eliminated from receipt of beneficiary travel reimbursement, unless the travel is for an emergency, an interfacility transfer, or a compensation or pension examination.

Question: Are there any provisions that consider cost of travel for veterans living, for instance, at a distance greater than 100 miles from a VA facility?

Answer: Transportation at government expense may be authorized under these amended regulations for eligible persons who reside at a location requiring the individual to travel a distance in excess of 100 miles to the nearest appropriate VA health care facility. Reimbursement for those residing more than 100 miles distant will be limited by application of a deductible. That deductible amount will be the product of the mileage reimbursement rate established under 38 U.S.C., multiplied by a factor of 100 for each one-way trip, or 200 for a round trip.

Question: The FY 1987 appropriation assumed that the new regulations restricting reimbursement would be in place. This meant that fewer payments would be made. VA medical centers had their beneficiary travel funds reduced accordingly.

Since the new regulations are not in place, I assume medical centers are reimbursing veterans based on current policy. I understand, however, there have been reports of veterans being denied payment because of insufficient funds.

Do medical center directors have the discretion to restrict payment?

Answer: Medical Center directors do not have the discretion to restrict beneficiary travel payment.

Question: Have centers received any direction from central office?

Answer: The only instructions issued to the field from VACO, pending publication and implementation of these amended regulations is - "business as usual until instructed otherwise."

Question: Will $68 million be sufficient to cover program costs in FY 1987?

Answer: FY 86 expenditures for Beneficiary Travel were $106,769 million. This equates to nearly $9 million per month. Assuming these amended regulations are implemented in mid April 1987, 6 1/2 months of program funds will have been expended at the 1986 rate = $58.5 million. This leaves 5 1/2 months remaining in FY'87, at a reduced rate of 55% of FY'86 expenditures, or $6 million per month x 5 1/2 months = $33 million for a total FY'87 expenditure of $91.5 million.

Question: How will the VA cover additional costs?

Answer: These additional costs are being absorbed within the medical care appropriation.

VA MEDICAL CENTER HEALTH MANPOWER

Question: I understand the VA is analyzing recently-compiled data, regarding staffing problems at its medical centers. Where do these staffing shortages exist, and what is being done to alleviate this problem?

Answer: The degree of recruitment and retention difficulty varies widely between VA facilities and across the various health-care occupations. However, staffing shortages are largely concentrated on the East Coast and in California. As of January 3, 1987, 17 medical centers (all but one of them on the East Coast or in California) had 143 (40%) of the 360 total VA special rate authorizations.

For FY 1987 to date, 89 adjustments have been made to the authorizations for health-care employees. Of these adjustments, 26 were new authorizations and 63 were increases in existing authorizations. Pharmacists accounted for 26% of the adjustments; RNs for 25%; and LPNs and PTs for 17% each. The remaining adjustments were for other health-care occupations.

Question: Is the VA utilizing special pay rates for shortage areas?

Answer: Yes, the VA is utilizing special pay rates for shortage areas as requests for special rate authorizations are received from affected medical facilities for Central Office approval.

Question: What effects do these shortages have on the delivery of health care at VA medical centers, and what effects do the shortages have on morale?

Answer: Despite lower employment levels, workloads and quality have been maintained and morale is high, partially because of the special pay rates.

VA MEDICAL CARE IN RURAL AREAS

Question: The VA recently submitted a report to the Congress, regarding the status of VA medical care in rural areas. The VA recommended two sites for a pilot study, one of which is in Farmington, New Mexico. What is the status of the Albuquerque VAMC's specific proposal?

Answer: The proposal for a small, community-based clinic in Farmington, NM to serve veterans living in the Four Corners area of northern New Mexico has been given considerable review, and although a number of arrangements yet need to be worked out, the plans for implementation are progressing well.

Question: When would you anticipate proceeding with the Farmington pilot demonstration?

Answer: It is anticipated that the pilot demonstration will begin operation in Spring, with May 1987 as the target month. Following implementation, an ongoing evaluation will be conducted to determine how well the desired outcomes for improved access, quality of care and cost-effectiveness are met. The details of the implementation plan and evaluation guidelines will be finalized shortly.

SHARING MEDICAL RESOURCES

Question: The Albuquerque VAMC has recently moved into its new facility. The VA has entered into a pilot sharing agreement with the Air Force, in which DOD will utilize a VA hospital for DOD inpatient needs.

I am pleased that our veterans and our military personnel will benefit from this pilot project, and that we will be getting the most from our federal health care dollar.

Mr. Administrator, the federal government supports a host of medical facilities. Could you give me your assessment of the feasibility of the VA entering into similar sharing agreements, with the Indian Health Service, community health centers, other DOD facilities, or other federally-supported health care providers.

Answer: Sharing of resources among Federal agencies has occurred for many years. The Economy Act of 1932 (31 U.S.C. S 1535) authorized sharing of resources on a broad scale. However, the VA-DOD Health Resources Sharing Law (38 U.S.C. S 5011), passed by the Congress in 1982, allowed local setting of reimbursement rates and for local health facilities to retain earnings for the services provided.

The Indian Health Service recently asked the Veterans Administration to explore the feasibility of including the Indian Health Services and other Federal health programs in an expanded Federal Health Resources Sharing Law. We are currently examining this legislative option.

BIENNIAL BUDGET CYCLE

Calls for budget reform are increasingly heard as budget deadlines are too often missed, important budget decisions are delayed, appropriation bills and other direct spending legislation are held up in committee, and omnibus spending bills take the place of timely and orderly consideration of individual bills. One procedural reform that is being considered is the two-year budget cycle where budget and appropriations matters would be considered in the first year, and authorization and oversight would be undertaken in the second year.

Question 1. Would your department/agency favor a biennial budget process? What benefits would your agency achieve in a two-year appropriation cycle?

Answer 1. The Administration is studying the subject of multi-year budgeting and whether to propose biennial budgeting for appropriations for accounts other than those in the national defense area. Biennial budgeting would appear to have substantial advantages for a number of agencies. With respect to our own agency, the VA believes that a biennial budget process has several potential advantages. A two year appropriation cycle might help to reduce the problem of uncertainties in funding levels. For example, a two year budget cycle might enable the VA to maintain a more consistent level of employment throughout the year, as periods of funding uncertainty would be less frequent.

Question 2. Approximately what proportion of your annual appropriation request would you consider simply repetitious of the previous year's submission?

Answer 2. Approximately 57% of our annual appropriations are for entitlement program which, except for anticipated workload changes and cost-of-living allowances, are repetitious of the previous year's submission. For the remaining portion of the Agency's budget, primarily the Medical Care appropriation, most costs are continued from one year to the next. New initiatives are a relatively small part of the Agency's budget request.

Question 3. What difficulties can you foresee in preparing and submitting a two-year budget to the Congress?

Answer 3. One difficulty we see is the fact that estimating for the second year budget would be in the development stage 30 months before the year is operational versus the current 18 month period. Estimating that far in advance would result in less precision and perhaps the need for more supplementals or amendments.

Question 4. If you oppose the biennial budget concept, please give this subcommittee your reasons why.

Answer 4. We do not oppose the biennial budget concept. We think it might be an improvement over the present process.

Questions Submitted by Senator Nickles

LAWTON, OKLAHOMA, OUTPATIENT CLINIC

Question: Oklahoma is home to more than 401,000 veterans, 73,100 of them over age 65. By 1990 that figure will increase to 99,900 and by the year 2000, the total will have jumped to more than 128,900. One of the most important promises this country made to those men and women who kept it free was to provide quality health care through the Veterans Administration. I am sure you are aware that VA facilities in Oklahoma treated 17,685 inpatients and recorded 297,516 outpatient visits during FY 1985.

The 100,000 veterans in southern Oklahoma and I have been trying to establish an outpatient clinic in Lawton for the past six years. This project must be put on the "fast-track" for completion at the earliest possible date. These veterans need medical service now. It has been suggested previously that discretionary funds be used to open this clinic. I would like to know if this is a possibility at this time. Until the opening of the Lawton Outpatient Clinic, we need an interim referral screening clinic, staffed by personnel from the Oklahoma City VAMC. Are plans underway for such an interim clinic and when may we expect that it will open?

Answer: The Administrator has authorized planning for a full-scale outpatient clinic in Lawton, OK, and at this time the procedure for acquisition of space to house such a facility is proceeding in a timely manner. The current schedule calls for activation by February 1990. In the meantime, the VA is reviewing the possibility of establishing an interim clinic presence (e.g., outreach/follow-up/referral/screening-type clinic activities) in the Lawton area. This review considers possible arrangements between the VA and Army as authorized in Public Law 97-174 (VA/DoD Health Resources Sharing Act). However, a final decision has not been made on an interim clinic at this time.

VA NO-BID POLICY

Question: I recommend that the VA change the no-bid policy to require that it be applied prospectively to loans made after the effective date of the policy change. Lenders who have made these loans that were made in reliance on then-existing VA policy are now being asked to take back the property securing these loans. Please respond as to whether the VA would institute this change.

Answer: The VA cannot institute the recommended change without legislative action. The Deficit Reduction Act of 1984 (P.L. 98-369) requires that estimated costs of acquisition, management and property disposition be taken into account in deciding whether a property will be acquired or whether "no-bid" instructions will be issued. This applies to all loans foreclosed after September 30, 1984. The VA supports the current policy as it ensures that cost effective property acquisition decisions are made when VA-guaranteed properties are in foreclosure. The VA has always had the authority to determine when it is in the government's best interests to acquire a property or pay the guaranty; the Deficit Reduction Act simply legislated how that decision would be made.

CARDIAC SURGERY

Question: Last summer, I was notified about the review being undertaken by the VA Central Office of the cardiac surgery programs at the VA Medical Centers across the country. The intent of the review was to close and consolidate approximately one-half of the programs. At the time, I voiced my strong objection to the consolidation of the cardiac care unit at the VAMC in Oklahoma City with Little Rock or Dallas. Such a closing would cause great hardship to our Oklahoma veterans and seriously jeopardize our residency training program in thoracic surgery at the University of Oklahoma Health Sciences Center.

In January, the Veterans Administration Medical Center in Oklahoma City informed me that our cardiac surgery center was one of the sixteen which will be continued for eighteen months under close monitoring. Please respond with an explanation of what is being studied under the monitoring, who will be reviewing the information collected, and when you expect that the final results of the monitoring will be released.

Answer: Monitoring of cardiac surgery will include review of case loads for each program (the minimum requirement is 100 cases per year but in 1988 will be 150 cases per year) and mortality data. If the mortality for all cardiac surgery performed at a station is twice the overall Veterans Administration average, audits of cases that resulted in death are performed; also, if the mortality rate for coronary artery bypass procedures is five percent or more, each death will be audited. The review and audits are done by members of the Veterans Administration Central Office Cardiac Surgery Consultants Committee every six months. They make recommendations to the Central Office Surgical service which in turn takes action on recommendations. Each Veterans Administration cardiac surgery program is reviewed every six months and has been since 1971.

The program at Oklahoma City will be reviewed in the manner described. As the cardiac surgery review process is on-going there are no final results to report. Appropriate notification would occur, however, in the case of any program subject to adverse action.

VA MEDICAL ADP PROCUREMENT

Question: The VA is in the process of updating the Automated Data Processing program. I would appreciate your providing me with a status report of this progress. Also, it is my understanding that Congress required that the VA evaluate the feasibility and cost-effectiveness of buying a complete and whole automated system from a commercial vendor. Currently, such systems are being demonstrated in three separate VA Medical Centers. The evaluation is scheduled to begin in June and continue through September. Why has the VA begun to procure additional hardware before a full evaluation has been completed?

Answer: The following is a brief status report on ADP within the Department of Medicine & Surgery (DM&S).

The DHCP concept was born in response to the VA Administrator's Executive Order of February 18, 1982, which directed that data processing support for DM&S be furnished primarily through a decentralized approach. Implementation of DHCP involves procurement and installation of equipment; development, testing and verification of software; training; promulgation of policy and procedure to support the program; data base administration; configuration management; and numerous other tasks, all underway at the present time.

The DHCP software is an evolutionary process, based on prioritization of medical center needs. Phases have been identified as

o **Initial CORE** supports registration, admission, discharge, transfer, patient scheduling, and outpatient pharmacy.

o **Full CORE** adds inpatient pharmacy and clinical laboratory.

o **Enhanced DHCP** provides automated support for primary clinical services which are usually considered part of the therapeutic package, and for certain management/administrative functions, such as Fiscal and Supply, that cut across all hospital services. Examples are radiology, dietetics, medical records tracking and surgery.

o **Comprehensive DHCP** adds optional modules which address clinical or support services not involved in carrying out physicians' direct orders or which do not have as high or complex a volume of paperwork as those addressed in the Enhanced DHCP packages, such as optometry, prosthetics, medical media, security/policy service, and building management.

As of January 1987:

o Initial/Full CORE equipment has been installed at all 164 sites. This includes central processing unit (CPU) configurations, peripheral devices,and special items such as laboratory interface devices and patient card embossers.

o The Initial CORE software is up and running at 164 sites. In District 17, all four medical centers have been converted to the DHCP Pharmacy package from the Computerized Medical Information Support System (COMISS) which was an enhanced version of the pioneer Automated Prescription Processing Labeling Editing and Storage (APPLES) system.

o Full CORE Implementations include: Laboratory - Chemistry 95 sites, Hemotology 94 sites, Microbiology 61 sites and Ward Order Entry 51 sites; Inpatient Pharmacy - Intravenous Additives 110 sites, Ward Stock 64 sites and Unit Dose 12 sites.

o Procurements made in FY 86 with deliveries in FY 87 are meeting a limited number of critical needs associated with Full CORE: improved printers for pharmacy labels; round-out of terminals for wards, work stations and clinic stops; communication upgrade.

o Initial versions of Radiology, Dietetics, Mental Health, Social Work, Engineering, and Dentistry have been released.

o Initial versions of Funds Control and Procurement, Surgery, and Nursing are being tested and verified.

o Records Tracking, Decentralized Medical Management System, Medicine, Fee Basis, Rehabilitation Medicine, Extended Care, Personnel, Order Entry/Results Reporting are under development.

With regard to the evaluation of the Integrated Hospital Systems (IHS), Arthur Arthur Andersen & Co. is performing this study under contract. The scope of the evaluation is limited to assessing the pre-automation and post automation environments at each of the three IHS medical centers. Baseline data will be collected prior to automation. Following automation, the contractor will determine the level of effectiveness of each of the systems being implemented. This evaluation began in January, 1987 and will be completed in September, 1987.

The Arthur Andersen & Co. contract does not call for comparing IHS with the DHCP program. That comparison was contracted with Booz-Allen and Hamilton, Inc. whose findings in their report of February 23 support the procurement of additional hardware for DHCP because it is the better foundation for future automation in the medical centers.

Questions Submitted by Senator Byrd

WEST VIRGINIA PROJECTS

The Senate report accompanying the fiscal year 1987 HUD - Independent Agencies Appropriation Bill (S. Report 99-487, September 25, 1986) included the following language, incorporated at my request:

> The Committee is also concerned with the clinical improvement addition project for the Huntington Medical Center, the clinical addition and alteration project for the Beckley Medical Center, and the laundry replacement project for the Martinsburg Medical Center. These West Virginia projects have been included in the VA's 5-year plan and discussed in hearings before the Committee. The Committee expects the VA to accelerate these projects and incorporate them into the earliest possible President's budget request.

In addition, I have been in correspondence over the past two years with the Administrators of the Veterans Administration in support of these West Virginia projects.

Question: Would you please review for the record the status of these various West Virginia construction projects, indicating anticipated milestone events and schedules for completion for each of the projects.

Answer:

Huntington - Clinical Improvement Addition

This project is on the FY 1987 Design Fund list and construction funds are included in the VA's FY 1988 major budget request.

The Office of Facilities is currently negotiating the working drawing fee with the A/E, Silling Associates, Inc., of Charleston, WV.

The anticipated schedule for the project is as follows:

Award A/E Working Drawing Contract	4/87
Complete Working Drawings	3/88
Issue Invitations for Bids	4/88
Award Construction Contract	7/88
Complete Construction Contract	7/91

Beckley - Clinical Addition and Alterations

This project is scheduled for consideration in the FY 1989 budget process. If the project were funded in 1989, it would be completed in 1991.

Martinsburg - Laundry Replacement

Construction funds for this project may be scheduled for consideration in the FY 1989 budget request based on the outcome of an A-76 Cost Comparison Study which is now being conducted. This study will determine if it is more economical for the VA to continue doing the laundry in-house or whether the private sector can offer those services more efficiently. The results of the study are expected in June 1987.

CLARKSBURG VA MEDICAL CENTER

Question: What is the latest status of the $25.9 million clinical addition project at the Clarksburg VA Medical Center, for which I broke ground on December 16, 1986?

The FY 1985 HUD Appropriation Bill included, at my request, the full amount budgeted ($21.4 million) for the project. In addition, I helped secure a reprogramming request in the amount of $4.5 million on September 29, 1986, which enabled a construction contract award to be made on September 30, 1986. Please update the status of the project, including anticipated milestone events and schedules for completion.

Answer: The construction of this project is approximately five percent complete with a construction contract completion date of May 1989.

WEST VIRGINIA NATIONAL CEMETERY

Question: Please update for the record the status of the new West Virginia National Cemetery for which I secured an earmarking of $1.75 million in appropriations in fiscal years 1984 and 1985.

Answer: The anticipated schedule for the Administration/ Maintenance Building and Committal Shelter portion of the project is as follows:

Complete In-House Working Drawings	5/87
Issue Working Drawings and Specifications to SBA	5/87
Award SBA 8(a) Construction Contract	9/87
Complete Construction	7/88

The Gravesite Development and Additional Facilities portion of the project is under construction with construction contract completion scheduled for July 1987. Plans for dedication services are being developed.

HUNTINGTON, WV STAFFING DEFICIENCIES

Question: Please update the record on the need to remedy staffing deficiencies, including programs serving Vietnam Veterans, as urged in the Committee report language, incorporated at my request last year and in previous years.

Answer: A deficiency in staffing was identified for Huntington approximately one and a half years ago. Subsequently, in March 1986, the Regional Director allocated 20 additional FTEE and funding to remedy this situation. Based on assessments of both formal and informal reviews and ad hoc teams, this medical center is providing all necessary needed care to eligible veterans seeking services. Recent Resource Allocation Methodology (RAM) analysis indicates that additional funding is not needed at this time.

Questions Submitted by Senator Lautenberg

Administrator Turnage, since January of 1985, I have urged the Veterans Administration to approve funding for a satellite outpatient clinic in Southern New Jersey. The need for this facility remains clear and urgent today. Nearly one million New Jersey veterans currently must be served by a single outpatient clinic in the state. It is overcrowded and understaffed. Because that facility is in Newark, veterans from the Trenton area must drive to Philadelphia or Wilmington to receive medical care. And, as I have pointed out in this subcommittee in the past, the need for the outpatient clinic in Southern New Jersey can only increase with the explosion in New Jersey's elderly veterans population. That growth will place further stress on the already overtaxed veterans health care system in the state. Last year we were led to believe that funding for the clinic would be requested in this year's budget. And, I for one, was very disappointed that no funding was requested.

THRESHOLD CRITERIA

Question: I understand from the VA's own documents that the criteria for placement of a satellite outpatient clinic are as follows:

- A total Metropolitan Statistical area of 100,000 or more
- A primary service area formed around that Metropolitan Statistical area location
- 20,000 or more outpatient visits projected a year
- A site that is 75 miles or more from an existing VA Medical Facility; and
- A backup hospital in the area for emergency support.

Is my understanding correct?

Answer: Yes. These are the current threshold criteria.

Question: Is Greater weight given to any of these criteria, or must a clinic meet each factor to quality for consideration?

Answer: The criteria are weighted equally; a clinic site should meet all, or be specifically exempted from, any one of the criteria.

Question: Would an outpatient facility in South Jersey meet such criteria?

Answer: An SOC in Atlantic City could conceivably meet the 20,000 visit criterion but not if an Ocean County clinic were established because the Primary Service Areas would overlap. A site in the Vineland area would not meet the 20,000 visit criterion for the same reason and, additionally, would not meet the distance criterion because of its close proximity to VAMC Wilmington. A study done by the Department of Medicine and Surgery showed that the benefits to New Jersey veterans are much greater in an Ocean County site as opposed to a Vineland site.

Question: Would an outpatient facility in Central New Jersey meet such criteria?

Answer: Yes. Ocean County is an ideal site. It is slightly under the 75 mile distance criterion, but the Medical District successfully argued that the extreme need outweighed the distance factor.

Question: Are there any threshold criteria that a New Jersey Clinic in the Central or Southern part of the State does not meet?

Answer: Yes. Ocean County does not meet the distance criterion, but this requirement was waived because the Medical District successfully argued that need outweighed the distance issue. Atlantic City would generate a much smaller number of visits then Ocean County. Atlantic City would probably not meet the threshold criterion when Ocean County is established because of the overlapping PSAs.

RANKING CRITERIA

Question: It is my understanding that the VA uses two factors to rank proposals for Outpatient Clinics once they have been determined to meet the threshold criteria. Those two factors are the projected number of outpatient visits a year and the distance or remoteness of the proposed clinic site to an existing VA facility.

Is this correct?

Answer: Yes.

Question: How does an Outpatient Facility in South Jersey or one in Central Jersey rank on these two factors?

Answer: Ocean County ranks very high nationwide primarily because of the high number of qualifying visits.

Question: How does its ranking on both factors compare to the ranking of the Clinics in Crown Point, Indiana, and Ponce, Puerto Rico?

Answer: Ocean County ranks above Crown Point and Ponce; however, these clinics were conceived and incorporated into the operational planning phase before Ocean County was proposed in the 1984 MEDIPP process.

Question: How does its ranking on both factors compare to the ranking of clinics in Duluth, Minnesota; Superior, Wyoming; Lufkin, Texas; Tyler, Texas; Savannah, Georgia; and Talahassee, Florida. Please be specific.

Answer: Ocean County ranks above each of these clinics based primarily on the high level of qualifying visits. Please note that there are not two proposals for Lufkin, TX and Tyler, TX. The Region has recommended Lufkin as the site for a new OPC.

Question: How does it rank compared to every other clinic for which a need has been determined?

Answer: Ocean County ranks first; if one included all existing clinics, however, it would not rank first in the nation. For non-existing clinics, however, it ranks first.

Question: Are you aware that the establishment of an Outpatient Satellite Clinic in New Jersey was recognized by the 1984 MEDIPP study as the highest priority in the entire VA Medical District IV, which encompasses New Jersey, Delaware, and parts of Maryland and Pennsylvania?

Answer: Yes. Ocean County was the number 1 District priority for establishment of a satellite outpatient clinic. It was not the Number 1 District medical care priority. As a medical care priority, Ocean County ranked #94 out of 125 actions proposed.

Question: Are you aware that the Satellite Outpatient Facility was given Level 1 funding approval, indicating that he Chief Medical Director and the VA Administrator agree with Medical District IV's assessment of the need for this clinic, and now has Level III approval?

Answer: There is no designation as "...Level 1 Funding Approval ..." Level 1 does mean that the Administrator and the Chief Medical Director agree that the need for an outpatient clinic has been justified; i.e., has met the technical and programmatic criteria. The clinic proposal received Level 3 approval by the Administrator in June 1986 at the culmination of the review process for the 1985 MEDIPP submissions.

Question: Do you agree that a legitimate need for this facility exists in Southern New Jersey? In Central New Jersey?

Answer: Yes. In the Ocean County area.

RANKING CRITERIA

Question: What is the reason for the delay in funding this facility?

Answer: There has been no delay in requesting funds for this facility. The FY 1988 budget request includes monies under Object Class 25 in Medical Care to permit award of a lease for this new outpatient clinic, if the lease option is approved. However, the decision to lease is subject to the completion of an economic cost analysis.

Question: Why was no funding for construction of this facility, or for leasing this facility included in the FY 1988 budget?

Answer: Funding is included under Object Class 25 in Medical Care to permit a lease award during FY 1988. These funds are necessary for lump-sum costs associated with special purpose improvements to clinic space.

Question: When can we expect funding for its construction to be included in the budget? Is your answer a firm commitment?

Answer: If it is determined, pursuant to the completion of the economic cost analysis, that the VA construction is in the best interest of the government, the facility would then compete along with other priorities of the Department of Medicine and Surgery for funding. The results of this prioritization process would determine the year in which funding would be sought. If, however, the decision is made to lease this space, the FY 1988 budget already includes funding to permit the lease award in FY 1988.

Question: How was the determination made to fund Crown Point, Indiana's clinic this year, and not provide funding for the clinic in New Jersey, and on what basis was the determination made?

Answer: The Crown Point clinic was approved for budget inclusion (MEDIPP Level III) in October 1985. Based on this approval, the project was included in the FY 1986 budget for lease award and in the FY 1988 budget for rental payments. The award for the Crown Point facility was made in May 1986 (FY 1986) and activation is scheduled for December 1987 (FY 1988). We have also requested funds to permit the award of a lease for the New Jersey clinic during FY 1988.

Question: How many visits is the New Jersey clinic expected to support?

Answer: The New Jersey clinic is expected to support approximately 25,200 visits.

Question: How many visits is the Crown Point, Indiana clinic expected to support?

Answer: The Crown Point clinic is expected to support approximately 65,789 visits.

Question: Last year in testimony before the House Veterans Affairs Committee, you indicated that if you could expedite the process, you assumed a request for funding for the clinic would be made available in FY 1988. What was the reason why the process was not expedited in time for a FY 1988 budget request? What is the reason for this delay?

Answer: Funding for the New Jersey clinic has been requested in FY 1988 under Object Class 25 in Medical Care. The use of these funds is subject to a determination to lease the facility.

Question: Is there money in the budget to begin setting up a VA outpatient clinic in New Jersey?

Answer: Yes, funds are requested under Object Class 25 in Medical Care. The use of these funds is subject to a determination to lease the facility.

Question: What is the purpose of this money?

Answer: The money in the FY 1988 budget is for "lump sum" payments which are the first monies the VA obligates upon lease award. These monies are used to cover the cost of special purpose modifications required in either new or renovated space to accommodate the VA's special requirements for clinic space above and beyond what would be required for normal office space. The use of this money is subject to a determination to lease the facility.

Question: Is it earmarked for the New Jersey clinic?

Answer: Yes, funds are earmarked for the New Jersey clinic. The use of these funds is, however, subject to a determination to lease the facility.

Question: What happens to this money if it is not spent?

Answer: Monies earmarked for the New Jersey clinic, but not spent, could be used to fund other projects.

Question: The VA has provided me with a copy of the new lease development worksheet for the establishment of a VA outpatient clinic in Ocean County, New Jersey. It lists February of 1987 as the date on which the economic cost analysis is to be completed. Has it been completed?

Answer: VA personnel visited Ocean County during the week of February 15, 1987 to collect information relating to the anticipated costs in acquiring a clinic facility. This information will serve as a basis for completing the economic cost analysis. A preliminary analysis was accomplished in March and we will complete the final analysis soon.

Question: What are the results of that cost analysis?

Answer: The final analysis will be completed soon. It should be noted, however, that the economic cost analysis does not serve as the final determinant in the method of acquiring clinic space. Rather, it is a tool which is considered along with other factors in the decision process.

Question: The worksheet states that a determination to lease must be made in March of 1987. Has that determination been made?

Answer: The worksheet referenced in your question is used to project time frames for various milestones if leasing is selected as the method of acquisition. If the purchase of a building or a VA construction project is the preferred method of acquisition, the milestones would change accordingly. No determination has been made at this time.

Question: This worksheet lists the date of determination to lease as March 1987, and then lists April 1987 as the date when the Administrator approves the project. Why does it take 2 months for a determination of this type? What needs to be considered by the Administrator before such decision is made?

Answer: Agency policy requires top agency officials to review the results of the economic cost analysis, along with other factors which influence the selection of the acquisition method. The collective opinions are then consolidated into a recommendation which is presented to the Administrator. The review and comment period for a complex issue would account for the majority of the 60-day time frame. However, we will make every attempt to expedite this process.

Question: What needs to be considered by the Administrator before such decision is made?

Answer: In addition to costs reflected in the economic cost analysis, the Administrator will need to consider the time constraints associated with the acquisition options, i.e., lease, purchase or build. The urgency of need to provide medical care to veterans in a given area is weighed against the cost differentials between the options and the acquisition schedules associated with the options. Full consideration is given to all of the influencing factors prior to the Administrator's determination.

Question: The worksheet lists September 1988 as the date for the start of construction. Is this a firm date? If not, what does it depend on.

Answer: We would note that the construction referenced on the worksheet relates to a leased facility. The starting date represents our best estimate of a starting date under normal circumstances. The date, however, is subject to revision and is dependent upon complexities encountered during the procurement process.

Question: The worksheet lists June 1989 as the date for the end of construction. Is this a firm date? If not, what does it depend on.

Answer: We would note that the construction referenced on the worksheet relates to a leased facility. The ending date represents our best estimate of a construction completion date under normal circumstances. The date, however, is subject to revision and is dependent upon complexities encountered during the procurement process.

Question: How firm are the dates on the worksheet?

Answer: The worksheet dates relate to the leasing process for the Ocean County facility. These dates represent our best estimates of milestones under normal circumstances. The dates are, however, subject to revision and are dependent, again, upon complexities encountered during the procurement process.

Question: How much will it cost to build or lease the outpatient clinic the VA has in mind for New Jersey?

Answer: Final cost estimates will not be available until such time as the economic cost analysis is completed.

Question: Does the VA plan to seek money in the FY 1989 budget for this clinic?

Answer: Yes. Although, funding for lump-sum payments, which must be obligated at lease award, are included in the FY 1988 budget request, funds for rental payments will be sought in FY 1989. This is subject to a determination that the clinic will be leased.

Questions Submitted by Senator Grassley

VETERANS ADMINISTRATION PROCUREMENT

Volume of VA Procurement

Question: I think that it is fair to say that the VA is one of our major procurement agencies, by which I mean that they purchase a large volume of supplies, services and facilities from the private sector. I would like to get a better idea of the magnitude of this activity.

Can you tell me how much the Veterans Administration spends on an annual basis to procure services, supplies and facilities?

Is most of this procurement undertaken for health-related services, supplies and facilities?

Answer: In FY 1986 the VA spent approximately $3.2 billion for services, supplies and equipment. Another $900 million was expended on construction and contract hospitalization, for a grand total of $4.1 billion. Roughly 95% of these expenditures were health-care related.

Grace Commission and Coopers/Lybrand Recommendations

Question: It is obviously very important, as we try to reduce the Federal deficit, that our Federal programs are run as efficiently and as cost-effectively as possible. The money we save through improvements in cost-effectiveness of our operations can be used to provide the services that the beneficiaries of our Federal programs depend on. In that connection:

I understand that, in response to recommendations of the Grace Commission, the Veterans Administration contracted with Coopers and Lybrand to undertake a study of VA's procurement of medical supplies and nonperishable subsistence. Coopers and Lybrand made a number of recommendations which were published in February of last year. They apparently felt that considerable monies could be saved in this procurement area.

What is VA's position on these recommendations? Do you agree that considerable savings could be achieved through procurement reforms of the sort recommended by Coopers and Lybrand? If so, what exactly are you doing about it?

Answer: The accounting firm of Coopers and Lybrand conducted a comparative study of VA and private sector procurement, contracting, and distribution of medical

supplies and nonperishable subsistence, commencing in August 1984 and ending in February 1986, at a total cost to the VA of approximately $871,000.

After very detailed analysis of the procurement, contracting, and distribution methods employed by the VA for those items centrally managed through the VA Depot system and obtained through other acquisition strategies, and rigorous comparison of that management philosophy with that employed by the private sector, Coopers and Lybrand concluded that the VA methodologies were the most appropriate, efficient and cost effective means of providing health care products to its medical centers.

Coopers and Lybrand did, however, identify areas where they believe that improvements could be made to the VA's current acquisition practices and distribution activities. Accordingly, 29 recommendations were included in the final report.

The VA generally endorses the recommendations proposed by Coopers and Lybrand and agrees that significant savings may be achieved through implementation of procurement reforms of the sort recommended in the final report of the study. To assure systematic and coordinated implementation strategy development and action, the VA has categorized the 29 recommendations into 6 program initiative areas and formed Implementation Task Force groups for each area which are guided by the Agency Implementation Steering Committee. The program initiative areas are as follows:

STANDARDIZATION
AUTOMATION
ACQUISITION IMPROVEMENTS
TRANSPORTATION MANAGEMENT
INVENTORY/WAREHOUSING IMPROVEMENTS
RECOMMENDATIONS REQUIRING FURTHER CONSIDERATION

The VA has fully implemented eight of the recommendations to date and the remainder of the recommendations proposed by Coopers and Lybrand are in the process of implementation strategy development or actual implementation actions are underway.

Senator Murkowski's Bill

Question: Senator Murkowski, the ranking minority member of the Veterans Affairs Committee, has introduced a bill, S. 631, which would require the VA to undertake certain procurement reforms along the lines of those recommended by the Coopers and Lybrand report. I'm sure you haven't had a chance to officially analyze the bill yet, since it was only introduced Tuesday, but can you give us any comment on it?

Answer: Appropriate staff offices have completed a preliminary review of the proposed legislation. The VA already is implementing a standardization program and a legislative mandate is not necessary to accomplish this initiative. However, if the legislation proceeds, several changes are required:

o The reference to generic medical and pharmaceutical supplies should be expanded to include bioequivalent generic pharmaceuticals.

o The reference to national contracts should be revised to recognize the existence of other Federal procuring activities who provide national sources of supply.

o In evaluating the 80-20 percent measurement of acceptable national contracting in relation to local procurement, bonafide medical emergencies should not be included.

o The provision to limit the market area for local contracting is not cost effective nor does it comply with the provisions of the Competition in Contracting Act (CICA).

o Requiring the Medical Center Director to submit a report concerning line item detail of local procurements would be a most difficult administrative burden until such time as an automated procurement system can be implemented. The equipment resources necessary for implementation of the automated procurement system at all medical centers is included as one of the four enhanced DHCP applications reflected in the Fiscal Year 1987 Presidential Budget.

The most valuable tool needed for standardization within the VA was not mentioned. This is the authority to use multiyear contracts in our acquisition programs. It is our opinion that multiyear contracting will provide a significant cost savings in the areas of contract administration and in lower cost to the VA for supplies and equipment.

At this time we cannot estimate whether, and how much, the implementation of this measure would cost. The standardization effort will also require personnel travel, ADP, mailing and shipping costs, which are unpredictable at this time.

THIS BUDGET AND THE AGING VETERAN

Question: Does this budget you propose reflect the fact that we now have some ten million World War II Vets with a median age of 65 with everything that implies about their changing health needs? And if you think it does, how does it do so?

Answer: The VA's budget continues to recognize the changing health care needs of aging veterans. The budget for long term care programs has increased by 37 percent over the last three years. Non-institutional programs (e.g., hospital-based home care, adult day health care, etc.) have experienced a 77 percent increase over the same period. In FY 1988, the VA will add 282 VA nursing home beds; maintain the Community Nursing Home Program at the current level; maintain the enhanced level of State Home construction grants; enhance some Hospital Based Home Care Programs; maintain the VA-operated Adult Day Health Care Programs at current levels and expand the contract component of that program.

EXTENDED CARE IN THIS BUDGET

Question: With respect to extended care, can you describe the VA resource commitment in your budget for fiscal year 1988 as between Institutional Care (in Nursing Homes, Domiciliary Care Homes, Hospital Nursing Care Beds) and non-institutional alternatives such as Home-Care, Adult Day Care, Respite Care, and Community Residential Care?

Answer: The following table is provided for non-institutional care programs in the Office of Geriatrics and Extended Care; Adult Day Health Care (ADHC), Hospital Based Home Care (HBHC) and Community Residential Care (CRC):

NON-INSTITUTIONAL CARE
(Dollars in Thousands)

	1988
ADHC	
VA Operated	$ 4,064
Contract	4,000
HBHC	23,305
CRC	12,225

The growth in the institutional programs for Geriatrics and Extended Care is shown in the following table which includes the VA, Community Nursing Homes (CNH) and the State Nursing Homes (SNH) as well as the VA Domiciliary (VA Dom) and the State Domiciliary (S. Dom) programs:

INSTITUTIONAL
(Dollars in Thousands)

	1988
VANC	$573,205
VA DOM	118,812
CNH	348,504
SNH	60,200
S. Dom	13,111

VA PLANS FOR EXTENDED CARE IN THE FUTURE

Question: Does the VA plan to be investing more in the development of non-institutional alternatives to meet the extended care needs of the older veteran, and can you give us any concrete sense of the timetable for this?

Answer: The VA does plan to invest more in non-institutional alternatives to meet the extended care needs of the older veteran. It is the long-range goal of the agency to expand the Hospital Based Home Care program to as many as 98 VA medical centers by the year 2000 (there are currently 64 designated programs). The degree to which this goal can be met will depend on the priority of this program with other programs.

The Adult Day Health Care program, designed to serve as an alternative to nursing home care is currently established at 9 VA medical centers with 6 additional programs planned to be activated during this Fiscal Year. This program will be evaluated for its medical efficacy and cost-effectiveness as an alternative to nursing home care. The study is projected to be completed in FY 1990 and the report published in FY 1991. Although we are hopeful that the study will produce positive findings, we do not plan any significant expansion of this program until the study is completed.

The Community Residential Care Home (CRC) program is currently established at 125 VA medical centers and serves a veteran population of approximately 11,400 on any given day. We see a need for expansion of this program to virtually all VA medical centers by the year 2000. Resources required for this program are minimal. The veteran pays for the cost of care in a CRC and the VA cost is limited primarily to FTEE needed to administer this program. These FTEE are frequently made available through redeployment from other programs of lessening priorities.

VA RESPONSE TO VETERANS AFFAIRS COMMITTEE RECOMMENDATION OF ABOUT $21 MILLION MORE FOR EXTENDED CARE ALTERNATIVES

Question: I understand that the Veterans Affairs Committee is proposing to the Budget Committee about 22 million dollars for an extended care alternatives initiative.

I think many of us familiar with the problems of older Americans feel that it is important to reduce the emphasis on institutional care which is so much a feature of our long term care system.

What will the Administration's position on this proposal be? Will you oppose it?

Answer: As discussed in a previous question on VA plans for non-institutional alternatives to meet extended care needs, the VA expects the expansion of the Hospital Based Home Care program, and the Community Residential Care Home program, and the possible expansion of the Adult Day Health Care program pending the results of a study of its costs and effectiveness. These expansions, if accomplished, would be supported through the medical care budget in competition with other priorities.

ON PROPOSAL TO CEASE MAKING HEALTH SERVICES AVAILABLE TO CATEGORY C VETERANS

Question: Will your proposal to cease making VA health services available to individual veterans with incomes over $20,000 have an effect on the extended care services you offer now to older veterans?

Answer: The President's FY 88 Budget proposal for the Veterans Administration includes a proposal to decrease funding for treatment of higher income, non-service disabled (Category C) veterans. This budget proposal does not represent a policy of discontinuing services for Category C veterans. The policy currently in place would not be changed. If individual medical centers have the capacity or service needed, they would treat a Category C patient. This proposal will not result in the elimination of any of the extended care services now available to the VA patient population. All the extended care services, now available such as community residential care, home based hospital care, etc. will continue to be available to eligible veterans.

Question: More specifically, how many older veterans now receiving extended care services would not be receiving those services were this policy now in effect?

Answer: The Category C veteran population now represents 2.4% of the veteran population that applies for medical benefits at VA health care facilities. Veterans 65 years old and over, represent 20% of the veteran population. Assuming that the potential number of veterans seeking extended care services is 55,000, then funding proportionate to that now used to serve approximately 264 veterans (55,000 x .024 x .2) would not be available. However, if an individual VAMC found itself able to treat these veterans in spite of decreased funding, it would be free to do so.

UNDER-USED VA HOSPITAL BEDS

Question: You have proposed to convert 282 under-used hospital beds to nursing-home beds. How many under-used hospital beds are there presently in the VA hospital system? How does the VA determine what is an under-used bed? What does it cost the VA to "carry" those beds?

Answer: As of the end of Fiscal Year 1986, the VA operated a total of 77,548 hospital beds with an average daily census of 56,940 patients, a bed occupancy rate of 73.4 percent. Because of patient flow dynamics, occupancy rates of 85 percent for acute and 95 percent for extended hospital beds are considered to be ideal or "full."

The VA's MEDIPP planning process takes into account these ideal occupancy rates when future bed needs are determined; that is, the hospital bed planning model projects a future need for census which is adjusted within the model to arrive at the appropriate number of beds needed to accommodate that census.

The results of the bed planning model have shown that in the future the VA will require fewer beds than currently operated to meet the hospital care requirements of veterans. Since these projected beds have already been adjusted for the ideal occupancy rate, the difference between the projected and current operating beds is technically "under-used" beds. The most recent projections, for example, show a future (Year 2000) need for approximately 70,500 which is about 7,750 less than currently operated. Plans for converting hospital beds to nursing home care beds are based, therefore, on this "surplus."

Actual conversions require analyses of a variety of factors including the need for nursing home beds in the facility with the projected surplus, the availability of an adequate number of beds to convert in a given facility, the potential need for renovation to bring hospital space into conformance with nursing home care requirements, and the cost effectiveness of renovating existing space versus new construction to name a few.

The VA has not conducted a cost analysis of the impact of the projected "surplus" of hospital beds. Since VA medical centers are funded based on patients treated rather than beds operated, the impact on current services is considered low.

DEMENTIA AMONG OLDER VETERANS

Question: Dementia is a problem that afflicts some older people, including, of course, older veterans. I know that the VA's Geriatric Research and Education Centers have done some good work on dementia and Alzheimer's disease. What do you estimate the number of veterans to be in Category A and Category B who have dementia?

Answer: In Fiscal Year 1986, VA medical center discharges with a primary or secondary diagnosis of dementia totaled 79,930. Approximately 94 percent (75,134 veterans) were in Category A and 2.6 percent (2,078 veterans) were in Category B.

Question: How much do you expect this category of veterans to grow over the next few years?

Answer: VA medical center discharges with primary diagnosis of dementia increased approximately 12 percent each year between 1981 and 1984. If this percent of increase remains constant, the number of VA medical center discharges with diagnosis of dementia could increase from 79,930 in FY 1986 to 125,773 in FY 1990.

SUBCOMMITTEE RECESS

Senator PROXMIRE. The subcommittee will stand in recess until Thursday, March 12, at 10 a.m., when we will hear from the Director of the National Science Foundation.

[Whereupon, at 12:05 p.m. Friday, March 6, the subcommittee was recessed to reconvene at 10 a.m. Thursday, March 12.]

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT-INDEPENDENT AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1988

THURSDAY, MARCH 12, 1987

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:02 a.m. in room SD–124, Dirksen Senate Office Building, Hon. William Proxmire (chairman) presiding.

Present: Senators Proxmire, Lautenberg, Garn, D'Amato, Domenici, and Grassley.

NATIONAL SCIENCE FOUNDATION

STATEMENT OF ERICH BLOCH, DIRECTOR

ACCOMPANIED BY:

DR. JOHN MOORE, DEPUTY DIRECTOR FOR NSF
MS. SANDRA TOYE, CONTROLLER
DR. RICHARD NICHOLSON, ASSISTANT DIRECTOR FOR MATHEMATICAL AND PHYSICAL SCIENCES
DR. DAVID KINGSBURY, ASSISTANT DIRECTOR FOR BIOLOGICAL, BEHAVIORAL AND SOCIAL SCIENCES
DR. NAM P. SUH, ASSISTANT DIRECTOR FOR ENGINEERING

OPENING REMARKS

Senator PROXMIRE. First, I want to apologize for being tardy. There were two other hearings that I had to go to, and I had to make a speech on the floor also, all at the same time, so it was difficult.

Today and tomorrow we will take testimony from the National Science Foundation on a fiscal year 1988 budget request of $1.893 billion, an increase of $270.1 million, or a 16.5-percent increase over the Foundation's current budget.

As I understand it, the Foundation plans to double its budget over the next 5 years and this year's requested increase is the first part of that strategy.

Frankly, I cannot think of anything that would be more difficult to do than to double any federal spending program over the next few years. We are fighting a fierce battle against frightening budget deficits and that battle can only get tougher as the years go by.

Consequently, we will be looking at ways in which we can preserve the Foundation's efforts to enhance industrial competitiveness without busting the budget by (1) reducing support for research efforts that have a lower priority; (2) eliminating research that is being adequately supported by other federal agencies; and (3) encouraging the private sector to put more of its resources into productive basic research initiatives.

I am particularly concerned over the possibility that the Foundation may be initiating more new centers and groups than can be supported fully in the absence of sharp budget growth, because I simply don't think that kind of growth is going to occur.

Consequently, I will resist attempts to start new initiatives that can't be fully carried out unless the NSF budget is doubled.

Having made those opening remarks, I take great pleasure in welcoming the Foundation's Director, Mr. Erich Bloch, to the subcommittee.

You can see this is going to be a receptive, cooperative, and supportive subcommittee, wherever we can be. We will give you anything but money. [Laughter.]

Mr. Bloch, your reputation precedes you and we are delighted to have you with us today.

I want to call on Senator Grassley for any opening remarks he would like to make.

Senator GRASSLEY. I don't have any opening remarks, but I appreciate the opportunity to have remarks, because most of the subcommittee chairmen don't go this far down the seniority list with opening remarks. I appreciate that mutual respect. Thank you very much.

Senator PROXMIRE. Senator Grassley, today you are No. 1. You are the only other Senator here. [Laughter.]

Senator GRASSLEY. It sounds good, but it doesn't work out very good.

PREPARED STATEMENT

Senator PROXMIRE. Senator Mikulski, who has been unavoidably detained, has requested that her statement be included in the hearing record. Without objection, it will be inserted into the hearing record at this point.

[The statement follows:]

STATEMENT OF SENATOR MIKULSKI

Mr. Chairman, I am pleased to join you at today's hearing on the National Science Foundation budget for fiscal year 1988.

Basic research and development is at the heart of restoring America's stature in today's international marketplace. New ideas and creative initiatives will guarantee that our industrial base will be competitive abroad and strong at home.

The President's fiscal year 1988 budget for the National Science Foundation demonstrates, at least in part, that the administration is committed to improving America's competitive edge.

It is ironic, however, that the same administration which is asking for a 16-percent increase for the NSF, would, at the same time, ask for sharp cuts in key education programs like vocational education.

A piecemeal and fractured approach to education, whether it is cutting back student loans or reducing the number of textbooks in elementary schools, while increasing

basic research, will not work. Instead, we need an investment strategy which prepares all students and all parts of our country for the new economy of the 1990's and the 21st century.

I welcome the National Science Foundation's Director, Dr. Erich Bloch, today. The state of Maryland's two major universities—the University of Maryland and Johns Hopkins University—both benefit greatly from Foundation funds.

It is my hope that the subcommittee can help gain additional funds for the Foundation, though I know that will be difficult in light of the enormous problems we face with the budget deficit.

I look forward to Dr. Bloch's comments and in working with him and the subcommittee to help prepare the nation for the challenges in research and development which lie ahead.

SUMMARY OF TESTIMONY

Senator PROXMIRE. Mr. Bloch, I see that you have a rather lengthy opening statement, so I suggest that you summarize your testimony with the understanding that your complete statement will be included in the printed record of the hearing. Go right ahead, and please introduce the colleagues you have with you.

INTRODUCTION OF ASSOCIATES

Mr. BLOCH. First of all I want to do exactly that. On my right is Dr. John Moore, the Deputy Director of the National Science Foundation; on my left is Sandra Toye, who is the Controller of the Foundation. She has all the money, I should point out.

SUMMARY OF STATEMENT

Good morning, I appreciate having the opportunity to talk to this subcommittee. Before I say anything in particular, I wanted to thank the subcommittee for their support in the past for the National Science Foundation's budget and for their support for science and engineering in particular. Without that support, we would not have been able to do what we have done.

ECONOMIC COMPETITIVENESS

Let me reflect for a minute on the concern with economic competitiveness. For too long we have tended to see our economic problems as the result of forces largely beyond our control, such as low wages in other countries or unfavorable exchange rates. The new concern with competitiveness makes us realize that the most important thing is simply to stay ahead of our competitors and take advantage of our natural resources.

I want to point out two things that I will refer to by that; namely, new knowledge and well-educated people. New knowledge which we get through basic research is important because it provides ideas for new products that we need to compete in high-technology areas. It also helps us to improve low-technology manufacturing and service industries in particular.

Education is important because talented and well-trained people are the source of the ideas, and the main resource needed to put them into practice. New knowledge and education are prerequisites to economic strength and the question is: Who is responsible for making us competitive?

The main responsibility, obviously, rests with the private sector. Government's role is generally limited to such matters as trade, taxation, and I toss in also, legislation.

BASIC RESEARCH AND EDUCATION

There is one area in which government's role is critical, that is the support of basic research and education. This is a long-term matter. Nothing we do here will produce quick results, but in the long-term nothing else we can do will have surer results. I believe that is where NSF comes into play.

Our concern is with the long-term needs of all parts of the science and engineering base. The Foundation is the only federal agency with such broad responsibility for basic research and education.

NSF encourages research on the boundaries between established disciplines where some of the most significant problems arise, and also where most of the benefits come from, in an economic sense.

NSF supports mathematics, science, and engineering education in ways that link education and research. NSF encourages cooperation and collaboration between universities and industry, and among federal, state, and local governments. In the process, as you pointed out, Mr. Chairman, leverage is the taxpayer's dollar.

NSF supports developing institutions and regions and broader participation by minorities and women. It is a major strength of our system that basic research and education take place together in our universities. This makes it essential that we increase our investment in these institutions, and that is the central thrust of our request.

RISING NSF BUDGET

Let me point out that much has been achieved over the last few years. Our budget request is in line with rising support by Congress and the administration over the last 7 years. Total federal support for research and development has nearly doubled since 1980, and outside of the defense effort, a much larger share now goes to basic research.

With strong bipartisan support, the overall budget for the Foundation has also risen, ending a long period in which it was flat.

Despite these actions, we still have serious problems with research and education. When compared with our trading partners, the United States ranks only fourth among the industrialized countries in the fraction of broad national product invested in civilian research and development.

The fraction of total federal R&D that goes to basic research and that goes to universities has been dropping, also, despite the increases that I mentioned before.

Furthermore, too few of our students are choosing science and engineering careers, and too few of those who do continue to the Ph.D. That is not the way to be competitive. We must invest more in our science and engineering base.

Senator PROXMIRE. Mr. Bloch, may I interrupt for just a minute. Senator Lautenberg has another subcommittee to chair and he is going to have to leave in a minute.

He has no opening statement, but he has questions he will submit for the record. We would appreciate it very much if you would answer those in writing.

Senator LAUTENBERG. I appreciate it. I am sorry that I will not hear Dr. Bloch's statement. He is always interesting. He is on the right side of so many things, that I wish I could hear this meeting with you, Mr. Chairman. I am sorry to interrupt.

Senator PROXMIRE. Thank you.

Mr. BLOCH. May I continue?

Senator PROXMIRE. Go right ahead.

1988 BUDGET REQUEST

Mr. BLOCH. Let me talk about the 1988 budget request. You mentioned already that it is $1,893,000,000, 17 percent above the current year.

In addition, as you also mentioned, the administration is committed to increases that will double the NSF budget over the next 5 years. These increases establish a strong base from which to plan expanded support for education in the university's basic research.

The budget proposal emphasizes three major areas. The first one is education and human resources. People are our most important resource. Reflecting this priority, our budget proposes a 50-percent increase for education and human resources.

EDUCATION

The Foundation has always been involved heavily in education efforts, but this year's proposal represents a broadened commitment.

Let me stress the word "commitment." In 1983, the science and engineering education programs were only 1.5 percent of the Foundation's budget, a low point, I might add. In 1988, the education programs will be 6.1 percent of the total and they will grow more rapidly than the rest of the Foundation, as our budget doubles over the next 5 years. They are only part of our overall human resources effort.

Just as important as commitment is the linkage between education and research programs. Why is this linkage important? It is important because only tight connections between research and education can assure that education remains relevant and up to date in the rapidly changing world of science and technology. It is important in our universities and it is just as important at NSF.

In 1987, our education and human resources efforts have totaled $182 million, of which 46 percent was spent by the research directorates. In 1988, the total will rise to $273 million, with 58 percent in the research directorates. All together education and human resources activities will be over 14 percent of the total NSF program in 1988.

SCIENCE AND TECHNOLOGY CENTERS

The second theme is the support for science and technology centers, which will receive an increase of $80 million. There will be additional engineering research centers and centers for biotechnology, material science, computer, and information sciences.

These centers are located at universities. They are multidisciplinary and are organized with strong industry involvement. They do basic research on problems that are important to science and important to competitiveness.

This is a program that the President announced recently in his State of the Union and request for excellence messages.

These centers are also part of our strategy for developing human resources, because they involve both graduate and undergraduate students in research that is current in the industries in which they will soon find employment.

Finally, the movement of students to industry and of the senior researchers in both directions is one of the most effective ways to move knowledge out of the university laboratory and apply it in an economically significant way in our industries.

DISCIPLINARY PROGRAMS AND FACILITIES

The third theme of this budget is a steady improvement of the Foundation's broad support for disciplinary programs and facilities. These will be increased by $99 million. Support for centers and support for disciplinary programs are complementary ways to support research. Neither should be overemphasized. It is a matter of striking the right balance.

The disciplinary programs remain the backbone of NSF. They are tremendously broad in scope, with one characteristic running through them all. In every field we seek the projects that promise the most fundamental advances in understanding. By its nature, this process cannot be planned. Not all projects deliver on their promises. Often the most significant insights come in unexpected ways, more than the technological or economic payoff that can be foreseen in many cases. Nonetheless, history tells us that the payoffs are there, and are often very dramatic.

Faraday's investigation of electricity, at the time very little more than curiosity, led directly to the electric motor and the electric generator. I doubt very much that Faraday had that in mind when he started playing around with wires and magnetic fields.

Maxwell's attempt to understand the relationship between electricity, magnetism, and light, led first to radio and eventually to modern telecommunications.

Roentgen was studying fluorescence when he discovered x-rays, which were immediately put to use in medicine.

These are classical examples. Let me give you an example from today. Superconductivity is another phenomenon that has a long history. It was discovered 60 years ago, in 1911, when scientists learned that certain metals lose all electrical resistance at a temperature a few

degrees above absolute zero, or 470 degrees below our normal temperatures.

For a long time, the practical applications were limited because getting low enough temperatures has been expensive. Within the last month, basic researchers at Bell labs, at the University of Houston, and also in Beijing and Zurich—which shows how international science has become—have demonstrated superconductivity at much higher temperatures.

These temperatures can be achieved with inexpensive cooling methods which may reduce the cost of superconducting a hundredfold. Inexpensive superconductivity may well revolutionize electric power generation and distribution in transportation systems.

Another good example is magnetic resonance imaging. Magnetic resonance was discovered in the 1940's, but only in recent years has it been applied to medical imaging, in effect creating a replacement for x-rays.

These stories are examples of basic research resulting eventually in important new technologies. They all involve more delay than we should like, as much as half a century, as in the case of superconductivity.

There is no easy way to change this. Part of the answer is to get the universities, where most of the basic research is done, in closer touch with companies that might use it. Funding science and technology centers is one way to do this and NSF is using some other approaches also.

They all come down to the same thing. The researchers need to know how the industry looks at problems and what the industry sees as possible ways to advance. Industry needs to know what university basic researchers are doing and what they consider important and what they consider possible. Both sides need to pool money, talent, and equipment to work on interesting problems.

People need to flow both ways in a steady stream, because knowledge is most easily transferred when the person who has it moves from one side to the other.

Mr. Chairman, the President announced recently a major initiative to set the United States on a quest for excellence. He said that our policies must serve three objectives, and I quote, "First, they must generate new knowledge in science and technology. Second, they must swiftly transfer that knowledge to the marketplace. Third, they must expand our nation's talent base in science and engineering."

These are objectives that will be met, in part, through the programs of the National Science Foundation, but they are long-term challenges. They will be met only by a long-term commitment to strength in our science and engineering base. The significance of this budget is that it makes that commitment.

Thank you very much.

[The statement follows:]

STATEMENT OF ERICH BLOCH

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

Good morning. I am glad to have the opportunity to provide an overview of the National Science Foundation's budget proposals for 1988, to discuss their relation to the nation's economic competitiveness, and to discuss a few additional topics of particular interest to this subcommittee.

First, let me express appreciation for the continued support that this subcommittee has shown for the importance of education and basic research in science and engineering. Your understanding of the links between research, education, and the welfare of our nation has been demonstrated by your willingness to recommend the needed investments in these areas which are important to advancing our economic competitiveness position.

It is high time that economic competitiveness moves to center stage. For too long we have tended to see the source of our economic problems as the result of unfair trade practices, or low wages in other countries, or unfavorable exchange rates.

Recently we have realized that if we want to compete successfully as a nation, the most important thing is to stay ahead of our competitors in continually generating new ideas, through basic research, and turning them into high quality, innovative products and services for the market place. Many forces must come together to achieve economic competitiveness, but a prerequisite is a viable infrastructure that is capable of educating our people and generating new knowledge.

Basic Research and Competitiveness

Colleges and universities are the principal instruments for development of these assets. They provide ideas and new knowledge for the products that we need to compete in high-technology areas, and the concepts and ideas that can raise productivity in low-technology manufacturing and service industries.

In fact, technological innovation achieved through research has been responsible for nearly half of all productivity gains since World War II. Research results can take their place along side economies of scale and other productivity enhancements.

Many of NSF's programs can be directly tied to these driving forces: robotics, engineering research centers, biotechnology, materials research, education of future scientists and engineers, and many more. Seeking productivity through research and technological innovation is the way we should enhance our position in international and economic competitiveness. It is far preferable to reliance on trade barriers or other protectionist measures.

The Science and Engineering Enterprise

The science and engineering research base on which we depend consists of three elements: people, facilities, and equipment. Of the three, people are by far the most important. Well trained people are the source of the ideas and the knowledge which make technological innovation possible. A dynamic, productive economy demands a steady flow of new ideas and well-educated people to generate successful products.

Adequate facilities and equipment can be obtained relatively quickly -- it only takes money. The creation of a scientist or engineer takes many years--the process begins in the precollege years and continues through undergraduate and graduate training.

The length of time this requires makes it imperative that we continuously attract the most talented young students into science and engineering programs. Interruptions in this process take many years, even decades to overcome.

We cannot depend on market demand to ensure an adequate supply of scientists and engineers, for the market fluctuates much too rapidly. The educational system cannot respond quickly when demand goes up, and finds itself producing surpluses when demand is down.

The Role of NSF

The government's ability to affect our competitive position is limited, and for good reason, since much of the initiative and responsibility rests with the private sector. There is one area, however, in which the government's role is both necessary and clearly beneficial: the support of education and basic research.

That is why the National Science Foundation plays an increasingly critical role in the national quest for economic competitiveness. NSF does this by providing linkages among the vital elements of the science and engineering enterprise:

- NSF not only supports research, but education;
- It not only supports basic research in the sciences, but also in engineering;
- It supports the nation's top research universities, but reaches out to undergraduate institutions, high school and elementary schools as well; and
- It does not operate in isolation but demands the active involvement in both planning and funding of the private sector, state and local governments, and universities themselves.

The FY 1988 Request

Our budget request for Fiscal Year 1988 is $1.893 billion. That is a substantial 16.7% above our appropriation for the current year. Of equal importance, the Administration is committed to increases at a rate that will double our budget, to a level of 3.2 billion dollars, by 1992 (Chart 1).

These increases, projected over a five year period, establish a strong base from which to expand support for education and university basic research and plan for the future. This is a major departure from the past. It reflects the need to rebalance our effort in research and development. This cannot be done in one year alone. It also reflects the nature of education and research--many of the proposed programmatic thrusts are spread over many years, even decades. Stability of funding commensurate with the time horizon of programs and initiatives allows for better planning.

NSF's budget request should not be judged in isolation. It must be considered as part of the total Federal research and

development budget, in fact as part of the total U.S. research and development effort (Charts 2-4).

Since 1980, federal support for research and development has nearly doubled, going from $33 billion in 1980 to about $63 billion in 1987. The fraction of the civilian-oriented effort devoted to basic research has risen in that time from about 26% to about 39% With strong bi-partisan support, the overall budget for the Foundation rose 66% between 1980 and 1987, ending a long period in which it was essentially flat.

These actions have been beneficial; but, we are continuing to experience serious problems:

- Basic research is dropping as a proportion of total federal R&D. It is also shrinking in the private sector (Chart 5).
- We see increasing research competition from our trading partners (Chart 6).
- We see shortages of scientists and engineers developing in some fields.
- Our production of scientists and engineers is not keeping up with that of our international competitors. And,
- Facilities and instrumentation in universities need modernizing.

We can only conclude that a significant increase in education and basic research support in our universities is needed.

Our budget proposals for 1988 are focused on dealing with these issues and giving a renewed emphasis to basic research and support for universities.

Three major themes are emphasized in this budget:

- Education and human resources;
- Basic science and technology centers; and
- Disciplinary programs and facilities.

Education and Human Resources

The first theme is education and human resources. The nation's science and engineering base -- the source of our ability to do basic research and to develop new technologies -- is made up of people, equipment and facilities. Of the three, people are the most important.

I do not need to recite the findings of several recent national studies and international comparisons which highlight alarming shortcomings in our education infrastructure, and in science and mathematics achievement among our students. And we know the demographic data that show us a future with proportionally fewer young people, our most basic resource.

We must act to address these serious concerns about the quality and quantity of the talent pool we need to sustain a vital scientific and technical enterprise in this nation.

The National Science Foundation proposes significant growth in support for education and the development of human resources, from $182 million in FY 1987 to $273 million in FY 1988.

Attention is given to the precollege, undergraduate, and graduate education areas. NSF has different responsibilities at each of the three areas of the educational spectrum.

In precollege education, the feeder for all science and engineering talent for the country, the center of gravity of support and policy is in the thousands of localities across the country, the state governments, and--on the federal level--at the Department of Education. The Foundation's resources are small compared to the total resources available and need to be judiciously applied. Yet our influence can be large. Our programs are designed to catalyze, to demonstrate, and to mobilize interest from other participants. For FY 1988, a major focus for NSF will be the President's mandate that we, in conjunction with the Department of Education, address mathematics, science, and computer literacy for the country's children.

Areas of NSF emphasis are ones where the potential for significant leveraging of our investment is present. Examples include:

- New materials development;
- Inservice and preservice teacher training;
- Early experiences to stimulate interest in science and engineering;
- Informal (e.g., television, museums) education beginning at the very earliest school years; and
- Focus and recognition for teaching excellence (e.g., the Presidential Awards for Excellence in Science and Mathematics Teaching).

Foremost however, the involvement of the NSF can guarantee the participation of the university research community in precollege education.

Undergraduate education in science, mathematics, and engineering has been singled out by the recent report to the National Science Board as demanding major attention. NSF's role will be one of focusing on:

- Research experiences for undergraduate students and faculty as part of its disciplinary research projects and centers;
- Curriculum development, beginning with calculus and engineering; and
- Instructional and research instrumentation for use by undergraduate faculty and students.

This is a new approach for NSF with respect to organizing our support for undergraduate research and education in science and engineering. All directorates will have a role and the effort will be coordinated for the Foundation as a whole by the Science and Engineering Education Directorate.

Graduate education has always been a major focus of the Foundation through its prestigious Graduate Research Fellowships Program and its support of graduate students through ongoing research awards. Support beyond the graduate level has included postdoctoral research associates, postdoctoral fellowships where special needs exist, special seminars and conferences, research initiation efforts, and the Presidential Young Investigators program.

Throughout the planning process and the development of the budget request before you, focus has been on balance across the educational spectrum to attract, educate, and retain the technical personnel we need for our future, We have used the principles of excellence and opportunity for participation by all our citizens, regions, and institutions to build a strong, comprehensive approach.

The table below shows the distribution of funds for this effort:

EDUCATION AND HUMAN RESOURCES

Undergraduate	$ 68.0 Million
Instrumentation/Laboratory Development	22.0*
Research Experience for Undergraduates	18.0*
Faculty Enhancement	11.0*
Curriculum Development	7.0
Research in Undergraduate Institutions	10.0

Other Human Resources	$ 205.0 Million
Precollege	68.0
Graduate/Postdoctoral	54.5
New Investigators	52.0
Broadened Participation	30.5

* Planning estimates. Final distribution will depend on proposal pool. Some projects may combine efforts for laboratory instruction, faculty and student development.

Under this effort, existing programs will continue, and expand, and new activities will be supported:

- Precollege emphasis on teachers, materials, advanced technology, and informal science education continues. New activities for high ability high school students will be implemented.

- Support for undergraduate activities more than doubles, with new activities for faculty and curriculum development, and significantly enhanced programs for instrumentation and students.

- 200 additional new Graduate Fellowships will be awarded, and the number of Presidential Young Investigators will increase by 200.

- New activities will be introduced to increase the number of women and minorities participating in science and engineering.

I want to emphasize that this effort in education and human resources will be supported throughout the Foundation. Over the past three years, the Foundation has placed increasing emphasis on addressing significant cross-cutting issues through all its programs. We have developed coordinating mechanisms, and established tracking and monitoring systems. This cross-directorate approach will be followed in the proposed activities for education and human resources.

The Science and Engineering Education (SEE) Directorate will continue its primary emphasis on precollege education, instructional laboratory equipment for undergraduate institutions, and the prestigious program for graduate fellowships (Chart 7). It also has the prime responsibility for bringing the President's mandate referred to above to reality.

I firmly believe that the Foundation's disciplinary research directorates must be responsible for the health of their science and engineering disciplines -- including concern for the underlying education and human resources infrastructure. The most effective activities in this arena will reflect the particular needs of specific disciplines and research areas. Therefore, the undergraduate initiatives, like many of the efforts focused on participation by minorities, women, and the disabled, are distributed across NSF, with central monitoring and fiscal control.

We have already seen the success of this approach in the program for Research in Undergraduate Institutions. The new program for Research Experiences for Undergraduates, introduced just last December, is already drawing enthusiastic response.

It is also important to recall that in addition to these focused efforts for education and human resources, the Foundation continues its substantial support for undergraduate and graduate research assistants on NSF research projects -- fostering in another way the critical link between education and research. In FY 1986, more than $115 million supported over 3,000 undergraduate and 12,000 graduate students in this fashion (Chart 8). This support will grow to an estimated $145 million in FY 1988 through proposed increases for science and technology centers and basic disciplinary research programs.

Basic Science and Technology Centers

The second theme is the establishment of basic science and technology centers. These are university-based, multidisciplinary research centers--each with strong industry involvement--working on problems that are scientifically important and can, in the long term, contribute to advancing our economic competitiveness. This is the program that the President announced in his State of the Union address.

The close coupling of industry with academic research that these centers provide has the potential to substantially improve technology transfer from research labs to industry and to the marketplace.

At the same time, these science and technology centers will play an important part in the education process because they involve students, both graduate and undergraduate, in research on important problems. The result of that research will find its way into improved curricula.

The proposed $50 million increase will be applied to the establishment of new centers based on the proven concept of the engineering research centers. These would include additional ERC's, biotechnology centers, and centers for materials science, social and behavioral sciences, and computer and information sciences.

Disciplinary Research Programs and Facilities

The third theme of this budget is the steady improvement of the Foundation's traditional broad support for disciplinary programs and specialized research facilities. For these activities, we are proposing an increase of nearly $100 million, with special focus on global geosciences, biotechnology, and materials science and engineering.

Solid support across all the disciplines is important because, by its nature, basic research is unpredictable; one cannot say in advance where a breakthrough with major economic importance will be found. But we know from experience that they will be found.

Let me give you an example that is striking: a problem in basic research in astronomy a few years ago was to develop calculations that could determine the properties of objects that are occluded by the moon. No one could have predicted that this same process of calculation would become the basis of an important modern medical technology called computerized axial tomography: the "CAT" scan.

These jumps from basic research to applications can almost never be foreseen, but they have happened so frequently in the past that we can be confident of the ultimate value of the investment.

Summary

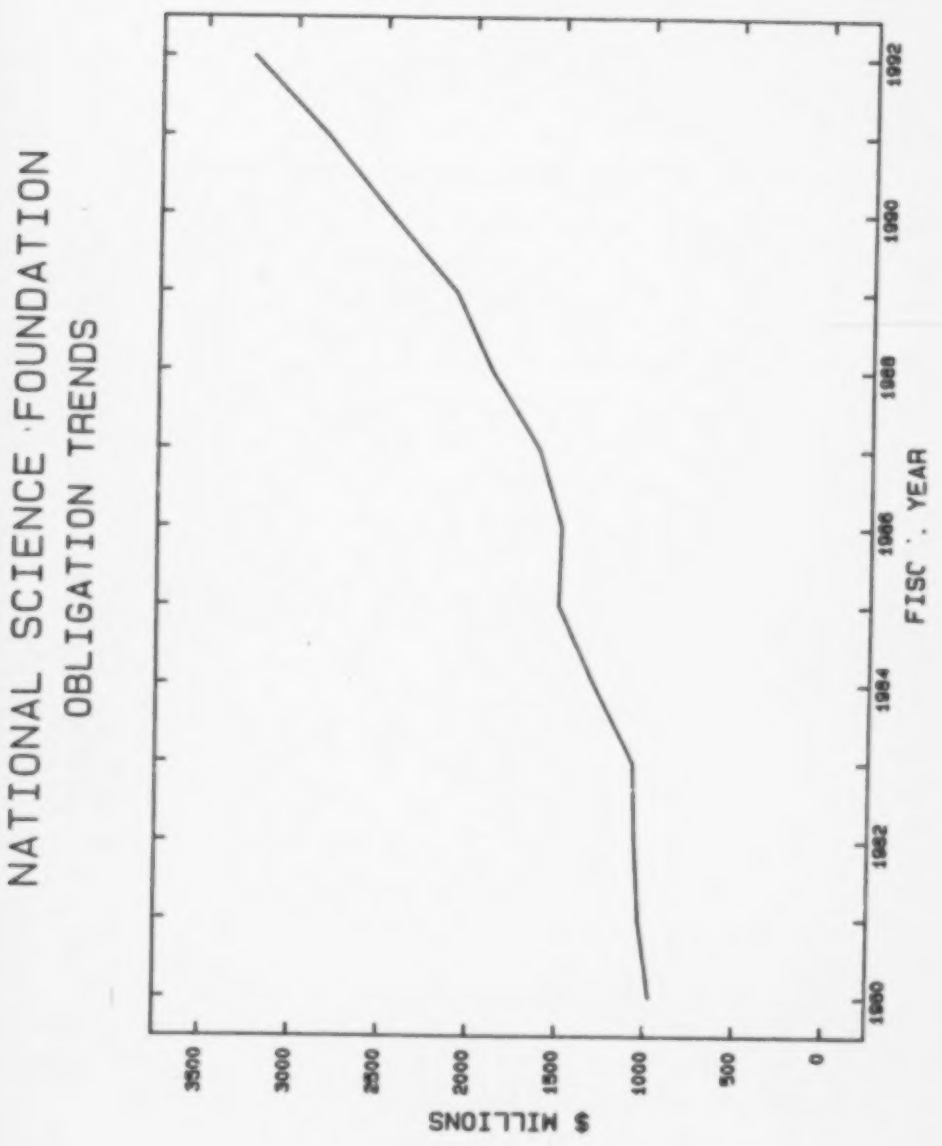
In summary, the NSF budget for Fiscal Year 1988 and future years will allow the Foundation to improve research and education in our universities and colleges in very important ways through:

- o basic science and technology centers;
- o mathematics, science, and engineering education at all levels of the educational pipeline;
- o broader participation of institutions and underrepresented groups;
- o cooperation between federal and state governments, industry, and academia; leveraging taxpayers' dollars in the process;
- o transfer of research results from universities to industry.

Mr. Chairman, all these activities are important for the long term economic health of our nation. Through them, the Foundation will make significant improvements in research and education at our universities and colleges.

Even more important, the Administration's commitment to doubling of the NSF budget will keep education and basic research in science and engineering on a steady upward track. I believe strongly that nothing is more important for the long term economic health of our nation. I look forward to working with you and with the entire Congress to make sure that these proposals are turned into actions.

CHART 1


NATIONAL SCIENCE FOUNDATION
OBLIGATION TRENDS
$ MILLIONS
0
500
1000
1500
2000
2500
3000
3500
1980
1982
1984
1986
1988
1990
1992
FISC . YEAR

NATIONAL EXPENDITURES FOR RESEARCH AND DEVELOPMENT

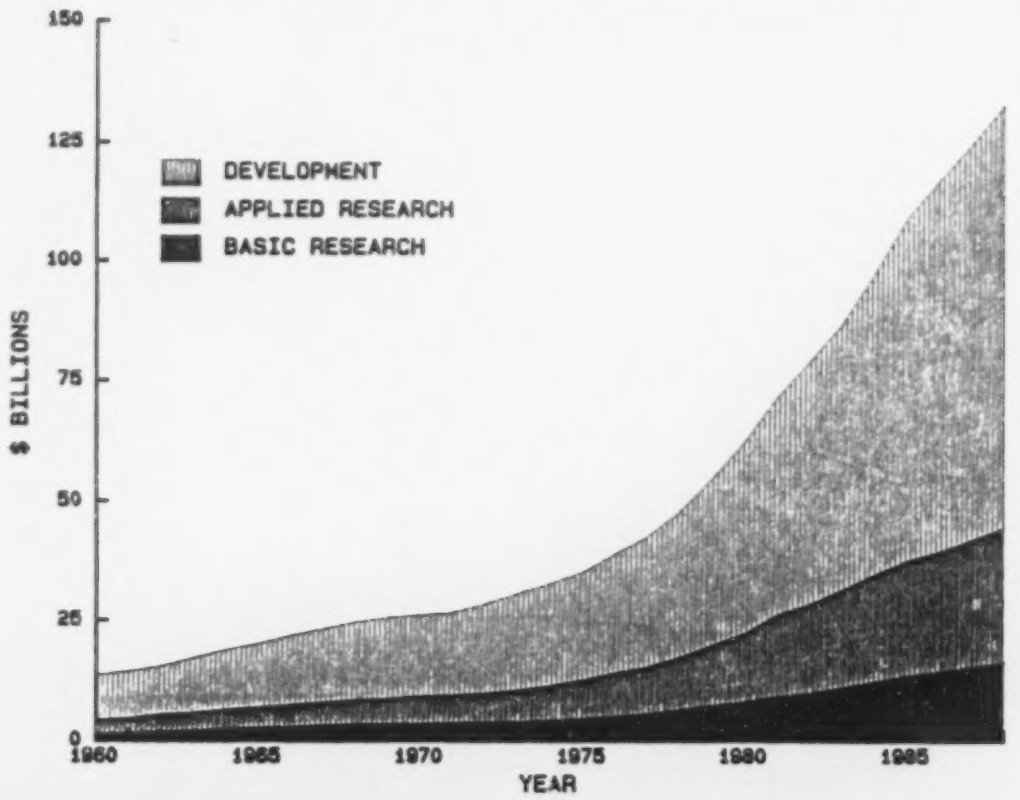


CHART 2

CHART 3

Research and Development
1987

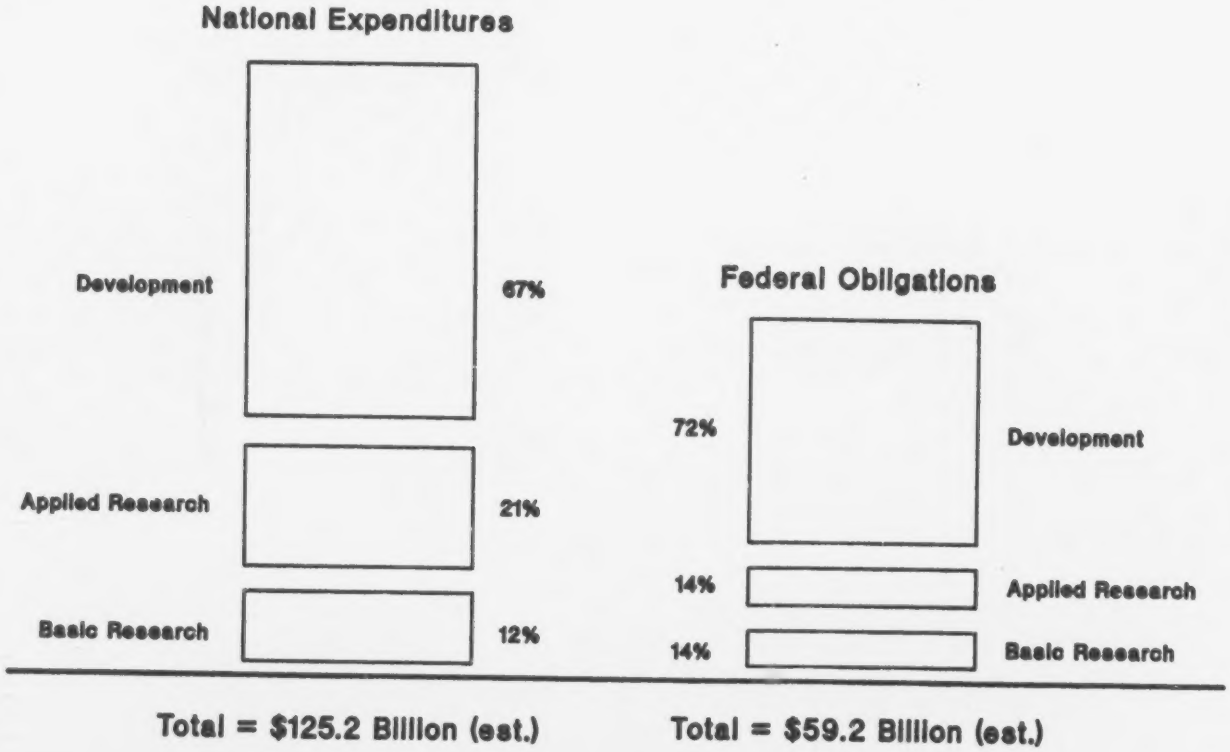
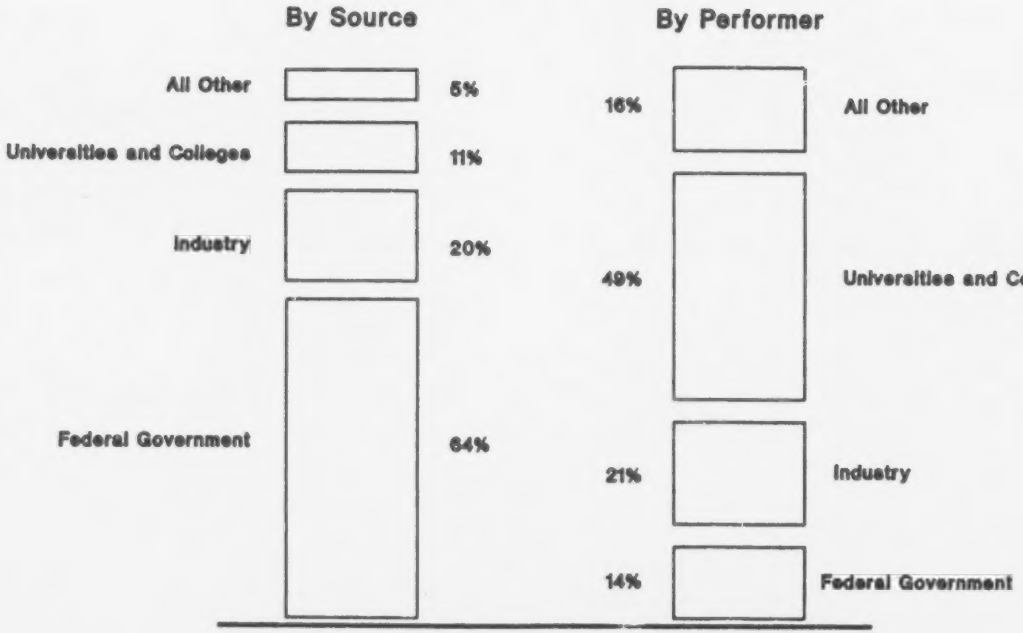


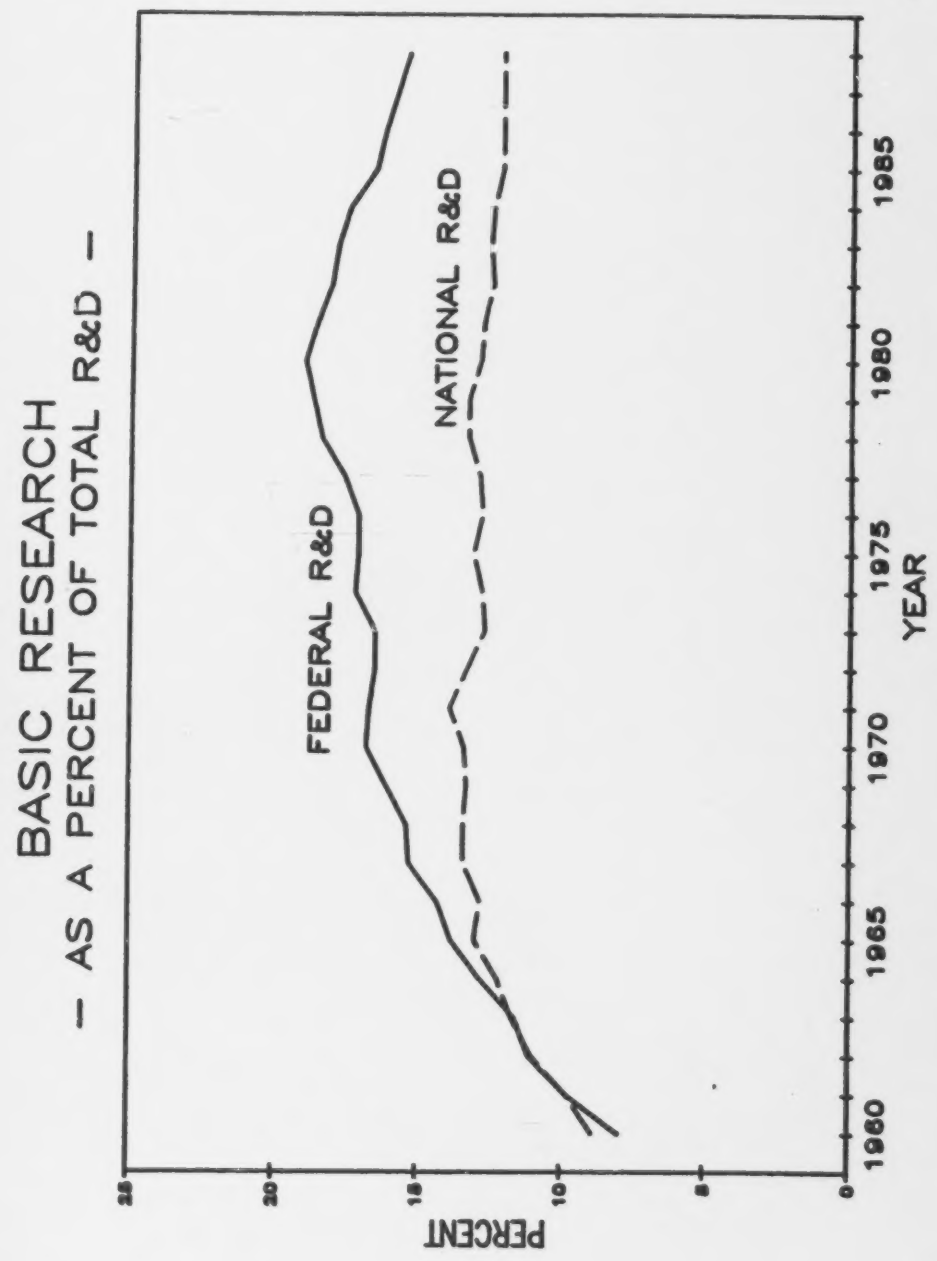
CHART 4

National Expenditures for Basic Research

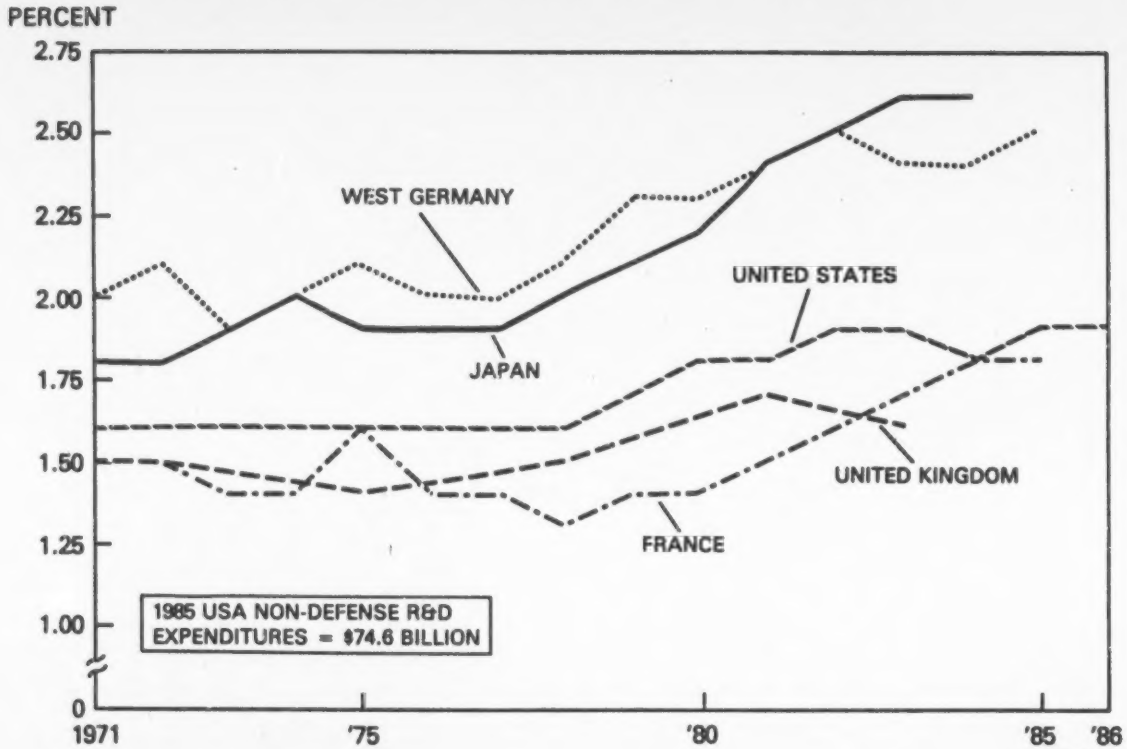


Total 1987 Expenditures = $ 15.3 Billion (est.)

CHART 5


BASIC RESEARCH
– AS A PERCENT OF TOTAL R&D –
FEDERAL R&D
NATIONAL R&D
PERCENT
25
20
15
10
5
0
1960
1965
1970
1975
1980
1985
YEAR

NON-DEFENSE R&D EXPENDITURES AS A PERCENT OF GROSS NATIONAL PRODUCT (GNP) BY COUNTRY



SOURCE: DIVISION OF SCIENCE RESOURCES STUDIES.

CHART 6

CHART 7

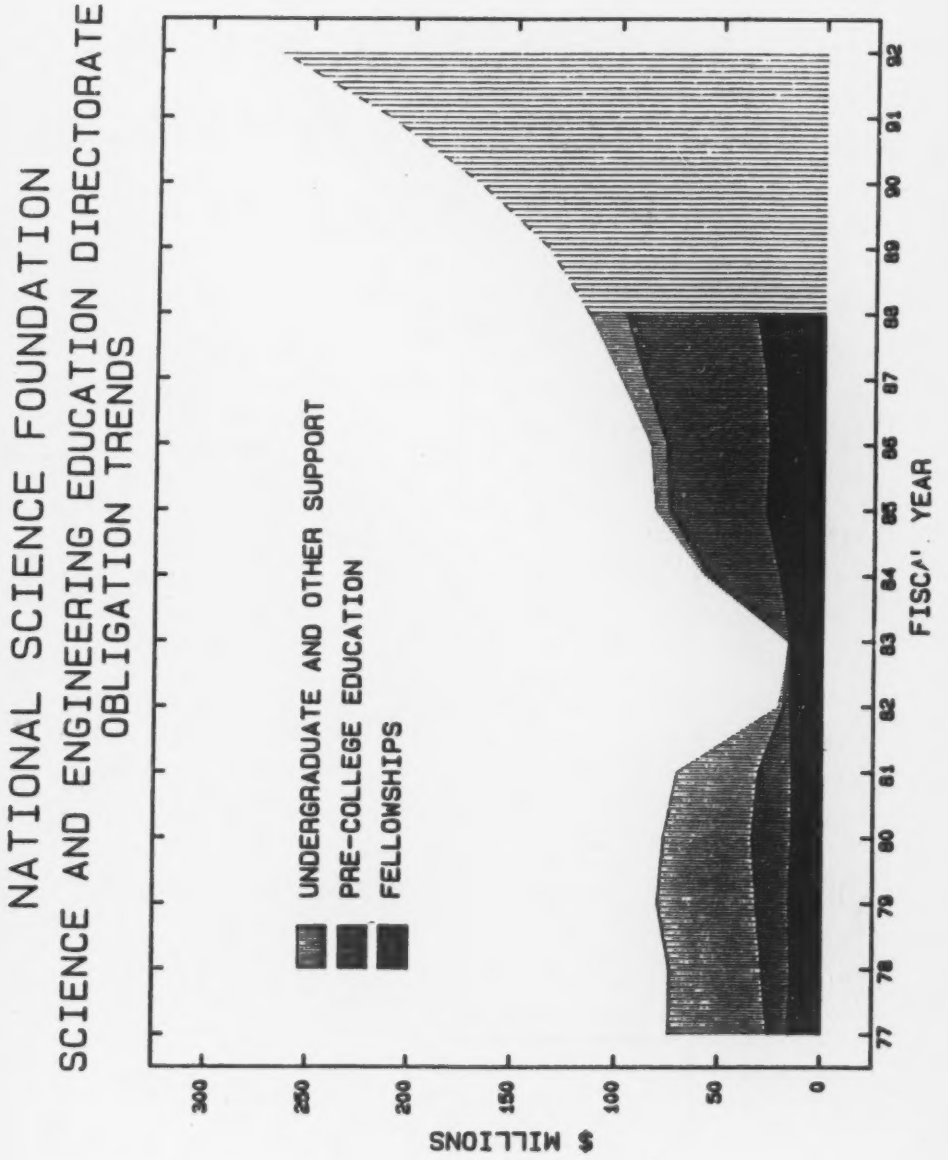
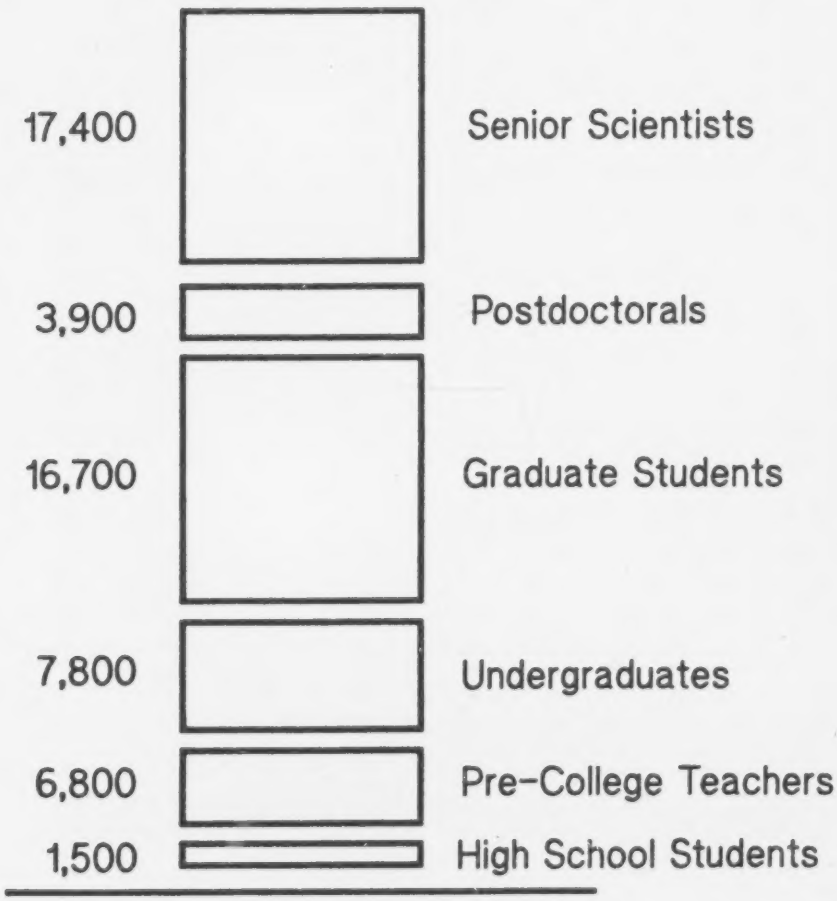

NATIONAL SCIENCE FOUNDATION
SCIENCE AND ENGINEERING EDUCATION DIRECTORATE
OBLIGATION TRENDS
UNDERGRADUATE AND OTHER SUPPORT
PRE-COLLEGE EDUCATION
FELLOWSHIPS
$ MILLIONS
300
250
200
150
100
50
0
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
FISCAL YEAR

CHART 8

National Science Foundation Support for Human Resources in Science and Engineering

Fiscal Year 1988



SENATOR GARN'S REMARKS

Senator PROXMIRE. Thank you very much, Mr. Bloch.

I am going to recognize, before I question, the former chairman of this committee, who is an expert in this area and did an outstanding job for several years, as you know.

Senator Garn?

Senator GARN. Thank you very much, Mr. Chairman. I wish my wife and kids were here to hear those nice words. I appreciate the meaning of them.

Senator PROXMIRE. If your kids were here they would fill the room. [Laughter.]

Senator GARN. There are only seven.

Senator PROXMIRE. You are off to a good start.

Senator GARN. Three grandchildren with a fourth one on the way. We are expanding rather rapidly. We are going to take over the world. [Laughter.] I appreciate the remarks even though not justified.

Mr. Bloch, let me just ask you two or three general questions, and then I will submit the rest of my questions for your response in writing.

The NSF is looked at generally as the government focus for science and technology. I think probably most of my colleagues in the Senate think this is where we do most of the research and the development, and yet only about 2.5 percent of the federal total is obligated by NSF, so most of the government's R&D activities are in a lot of other areas. I think this brings up the question then of coordination in research and development, particularly in basic science. Even in basic science you are about 15 percent of the overall federal programs.

My question is, because you only direct a very small fraction of federal research efforts, could you outline what the Foundation's efforts are to balance and coordinate its efforts with that of our other federal agencies in order to eliminate overlap and duplication?

NSF'S COORDINATION WITH OTHER AGENCIES

Mr. BLOCH. Yes, I would be glad to address that problem. Your numbers are absolutely correct.

What we are doing to coordinate with other agencies and to work with other agencies occurs at many levels. Let me start at the most important level; namely, at the program officer's level of the Foundation and their counterpart in the other agencies.

There is a good collaboration going on, especially in areas where both we and other agencies are working in the same field, or in the same general area, without duplicating each other's work.

For instance, with NIH we have a very close program to program relationship where we are sharing access to their grant submissions and they look at our grant submissions. Sometimes we fund some of them together. That is on one level.

On another level, the directorate level, there is a very close relationship and cooperation in major programs. Let me take one directorate in particular; namely, the Geosciences Directorate under Dr. Merrell,

where there are major programs that depend on other agencies' support, or where other agencies depend on our support. In those areas there are formal kinds of agreements between the agencies in terms of support.

In other areas we are using other agencies in a direct support mode. Anarctica is a typical example of that, with the Navy supporting us in the logistics area.

Then, at another level, there are at times agreements being reached through the Office of the Science Advisor. For instance, last year there was an effort made to get the Department of Energy, NSF, and the Department of Agriculture to fund jointly centers for plant sciences.

Neither of the three agencies would have had the wherewithall to do that alone. Through the Office of the Science Advisor we were able to pool our resources.

Many times there are committees set up to coordinate across the agencies on many subjects. A case in point: there is one very active committee right now in the computer science area, especially in the computer communications area and networking, that is coordinating activities across the federal government.

You can see, essentially, that it is at many levels in the Foundation where this coordination takes place.

IMPACT OF INSUFFICIENT R&D FUNDING

Senator GARN. Mr. Bloch, you have made a persuasive case again this year for the need to augment current levels of government expenditures for R&D, and I think you know what my attitude has been over the years. I think the National Science Foundation has been underfunded but, nevertheless, we always had to view those expenditures in the context of a very difficult budget situation with very large deficits.

I have often been asked, with all the needs that we have for so-called tangible expenditures in government, how do we justify this. It has always been a little bit difficult to show what money goes for in R&D, and certainly to explain to your average constituent. I suppose it is hard for them to understand the need for increased spending, unless we look at it, I suppose, as the cost of not investing in basic research and development.

Could you explain for the committee a little bit the negative side of it; in other words, what the consequences are of failing to do properly the basic R&D in this country?

Mr. BLOCH. I would be glad to address that problem, but first of all, let me——

Senator GARN. Maybe, more specifically, in your request for additional funding this year, the negative impact of not getting that particular funding?

Mr. BLOCH. Before I do that, let me thank you for the years of support that we received from you as a member of this committee and as chairman of this subcommittee. We are very grateful for that.

Let me address the negative aspects of not funding our request. We have in our request, for instance, a new initiative for undergraduate education. Why did we focus on undergraduate education?

We focused on it because that is an area of education that has fallen behind. It has been neglected in terms of laboratory instrumentation, in terms of curriculum development, in terms of preparation of teachers. Not funding that area, I think, will hurt us greatly in the long haul, because it is the basis for the education of the scientists and engineers that are going into industry, or going into government service, or becoming teachers. And if these people are not well prepared as they enter their careers, then I think we are starting them off on the wrong track. That is certainly one area.

PRECOLLEGE EDUCATION

While I am on education, I might as well say the same thing about precollege education. We have increased our funding in precollege education over the last 3 or 4 years. Some people think we have not increased it enough, and I share that view, but we have tried the best under very tight circumstances.

Not investing in the education of our high school children so that they can understand mathematics and science, and so that they are prepared to go into these fields, if that is what they want to do, again, is an omission that we cannot afford.

RESEARCH COMPETITION FROM ABROAD

In the research areas themselves, we are talking about competition and by that I mean economic competition from abroad. Let me say that there is such a thing as research competition from abroad also. We are cooperating with other countries, with other scientists, but still underlying all of this, is a competitive threat.

Japan is gearing up for a push into basic research. They had never done that before; they are doing it today. The reason for it is very simple. They know that the results that they are getting from it and needed and they depended on us to supply these results in the past. With Japan catching up with our industries, they now have to depend on themselves to lead. About 40 percent of the productivity improvements over many years have come from new technology, new knowledge and insights. Not investing enough in it, I think, deprives us, essentially, of a basic raw material that we need to bring our industry into the modern world, and also to ensure that industry to produce new products that sell in the marketplace.

I see that as a major downside risk, if we don't do the right thing by basic research and by education.

Senator GARN. Thank you very much, Mr. Bloch. I will put the remainder of my more specific questions for your response in the record.

Senator PROXMIRE. Thank you, Senator Garn.

Senator Grassley?

Senator GRASSLEY. Thank you, Mr. Chairman.

PLANT SCIENCES PROGRAMS

Mr. Bloch, my first question would deal with some new funds that you are requesting for plant science programs for fiscal year 1988.

Our state has placed an emphasis upon development centers, like molecular biology. I am curious as to the agency's plans for the $10 million that you have requested in this area.

Mr. BLOCH. I will ask Dr. Kingsbury to speak to that problem, if you don't mind, because that is really in his field.

Senator GRASSLEY. Certainly.

First of all, is my information correct?

Mr. KINGSBURY. Your information is correct that the plant science initiative is a composite initiative between the National Science Foundation, the Department of Energy, and the U.S. Department of Agriculture. Each agency was a one-third participant, so the National Science Foundation's component of that is $3.33 million.

The plan is envisioned to establish three to four centers that would focus on specific areas limited to the plant science and plant molecular biology areas, and the implementation of new biotechnologies in agriculture.

The specific sites and topics have not been selected. We are in the process of generating a program announcement that will be issued jointly by the three agencies, specifically requesting university and research centers to come in with proposals. We envisioned that one portion of that composite group will be the Center for the Study of Complex Carbohydrates, which the Department of Energy has already announced. That amounts to about $1.5 million.

The rest is undesignated. We are looking for good ideas to come from the universities, from national laboratories, from composite consortia between universities and national laboratories.

Senator GRASSLEY. I appreciate that. One followup question. When do you anticipate the announcement being made?

Mr. KINGSBURY. It is totally dependent on the appropriation of funds in the 1988 budget, I think. We probably, in our current budget, do not have adequate money to designate that large amount, $3.3 million, to this effort. It would have to be scaled back.

Senator GRASSLEY. It would be starting October 1.

Mr. KINGSBURY. We anticipate releasing that program announcement as early on in this fiscal year as possible, and making the awards as early as we feasibly can. We are in the process right now of generating that program announcement, but we cannot release it until we know what the budgets are.

ENGINEERING RESEARCH CENTERS

Senator GRASSLEY. Mr. Bloch, either you or appropriate staff, in regard to funds that you have requested for engineering research centers for this next year, could you let me know what areas you plan to look at next year to fund?

Mr. BLOCH. Let me describe how we operate with regard to the engineering research centers. Let me give you some facts first. There are 11 centers in existence right now. In addition to that, in the next few weeks, we are ready to announce another, probably, 2 or 3 centers, so that brings us up to about 14.

The way we are establishing these centers is through a solicitation. The universities, together with industry, are submitting proposals. We are getting many more proposals than we fund. For instance, this year we have 68 proposals. As I said before, we are going to fund 2 or 3, so you can see the disparity between what we can fund and what is requested.

But the areas of research, the areas of activities, are determined by the submissions. We judge these submissions by peer review for their excellence. We judge them by relevance. How relevant is a particular task? And we want to have diversity, a diversity of institutions as well as diversity of the problems to be tackled.

I cannot tell you what kind of areas we are going to fund next year. All I can tell you is what we have funded so far, which ranges from robotics to microelectronics to combustion engineering to materials engineering; from composite materials, for instance, to structure engineering, to design research, and so forth. The topics have a broad range.

Senator GRASSLEY. There isn't any way that there are any predilections within the agency?

Mr. BLOCH. No, that is right. We are shying away from that because we receive a great diversity of proposals. Our problem is funding all those diversities, not a lack of diversities.

PEER REVIEW SYSTEM

Senator GRASSLEY. Mr. Bloch, I think this one would be an appropriate one for you. I understand that your agency has recently completed a study on the peer or merit review system of grant selection.

I would like to have you review that report with us and let us know your latest thinking on the process?

Mr. BLOCH. We have just finished a review of the peer review system as used in NSF. As you know, the agency depends very heavily on that system. It is a quality control mechanism for us on the excellence of the science that is being performed. The peer review system has changed over time because the environment has changed over time, but it has never deviated from the fact that excellence is the most important parameter.

We had a group of very experienced people under Dr. Norman Hackerman to do that particular review for us. He was former Chairman of the National Science Board and the president of Rice University. He has a lot of experience in this particular area.

He essentially gave us good marks on what we are doing, how we are doing it, and where we can improve. We are in the process of implementing most of the recommendations. Some of them we had already implemented before.

His point, essentially, was that the peer review system works well and the Foundation doesn't have any bias that is discernable. In order to work, it needs a very broad spectrum of people that participate in the peer review process as reviewers as well as on the advisory committees, and we have focused on that particular area. We also need to accommodate the many different types of proposals, such as individual grants, center grants, multidisciplinary grants, as well as a disciplinary grants, and that we have to be flexible in that regard, which we are trying to be.

Those were, essentially, pretty much the recommendations and the conclusions of the Hackerman panel. We have a report and we have also an action plan based on that report, which we certainly can submit to you for your perusal. We can also discuss it further if you so desire.

Senator GRASSLEY. I would appreciate that.

GEOGRAPHIC DISTRIBUTION OF FUNDS

You indicated in your remarks that your request for funds this fiscal year is an increase of over 16 percent, and you also indicated that your expenditures nearly doubled, from $33 billion to $63 billion for fiscal year 1987.

I also understand that from your fiscal year 1986 report, in appendix A, "Justification of Estimates of Appropriations to Congress," that three states received 37 percent of the total dollars from your programs, that 28 percent received less than 10 percent of the total dollars.

So I suppose this may be looked upon as a parochial question, but one that I get asked by my constituents frequently. I am concerned as a Senator from a state that gets less than 1 percent of your agency funds, how you might be able to justify sending all that money to so few states, and wouldn't it be better to help those institutions in other parts of the country to develop strong research projects and programs so that we can develop a national network of centers for research?

Mr. BLOCH. Let me answer this question, but before I do that, let me correct one of your numbers. Unfortunately, they were not correct. I wish they were. NSF did not go from $33 billion to $63 billion. That was the total federal government spending for R&D over the last 7 years that I was focusing on. I wish it had been NSF.

Now to address your question. What you are asking is, essentially, geographic distribution, and how do we help all the states and all the institutions in all the states.

That is a subject under discussion at the Foundation. Also, I have discussed it at length with congressional Members over the last couple of years. Let me say a couple of things first.

The way I see it, we have two responsibilities. The first responsibility is to make sure that the United States is at the forefront of research in the very important areas on which we are depending economically and scientifically. That is one obligation. Obviously, the same applies to education. As I mentioned before, I link the two together.

The second obligation that we have is to make sure that all institutions can enter, have access, and participate in the NSF effort, because we need the help from all of them. These two obligations we are taking very seriously. We have looked at institutional distribution. We have looked at geographic distribution and we have asked ourselves what can we do to improve it. We have put certain programs in place.

For instance, over the last 5, 6 years we have singled out the lowest states in terms of their participation in research and we have had a program called the EPSCOR program. Its goal is to bring these states to an acceptable level of competence. Not necessarily to the highest level, but to an acceptable level.

We had programs like that in South Carolina and Montana, as two examples in the past. We have programs like that this year in Vermont, in Kentucky, and five other states. That is one way.

Another way in which we have been addressing this particular issue is by focusing on the institutions which are not participating as much as they should. One type that comes clearly to mind when you say that—and they are distributed very broadly across the country—are 4-year colleges. What you noticed on your chart, what you see on those charts, is the research universities, the MIT's of the world, the Berkeleys of the world, University of Wisconsin, et cetera, et cetera.

We have been focusing on undergraduate institutions. How we can bring the people in those institutions, the researchers in those institutions, that are teachers at the same time, how can they participate in the research programs. We have put programs in place for that. We have been working on that, but in the end I have to say, many of these states and many of these universities—and by the way, a lot of them are doing it—have to help themselves also.

Many of the states are doing more today in terms of supporting these institutions than they have ever done before, and I think we can take advantage of that. But we have to also put our best foot forward, and I think we are doing that. The numbers that you are seeing there, obviously, are the high rollers, essentially. That has to do with the first subject that I mentioned. One of our big obligations is to make sure that the United States is at the forefront of basic knowledge, basic research. That usually flows from established universities that have built a base over time.

I should also mention there has just been a GAO report on this particular subject, which we will gladly send to you. On the fairness of the peer review system and the distribution of grants, the report states that at both the Foundation and NIH, the peer review system has, essentially, broadened the participation, not narrowed it. They compared it to DOD R&D, for instance, where a peer review system is not used in that particular sense.

Senator GRASSLEY. I thank you for that explanation and I will have to try to work with you to see if any of those things can be changed so that there can be a wider distribution of funds.

I am going to submit two questions in writing, Mr. Chairman. I think that is the end of my questions.

Senator PROXMIRE. Thank you very much, Senator Grassley.

Mr. Bloch, I want to apologize. I called you Dr. Bloch.

Mr. BLOCH. I accept your apology.

Senator PROXMIRE. Tom van der Voort said, "This guy must really be smart, if he has gotten to the status he has gotten to without having a Ph.D."

Paul Douglas, whose initials were P.H.D., was a marvelous economist and, of course, was a Ph.D. himself, said that that meant piled higher and deeper. [Laughter.]

Could I ask you, Mr. Bloch, I have a number of questions here, if you could condense your answers as much as possible?

TWO-YEAR APPROPRIATIONS

Senator Domenici has suggested that we explore the possibility of passing 2-year appropriation bills. Would that approach create any particular problems with the Foundation, or do you see a benefit in having to justify your budget only once every 2 years?

Mr. BLOCH. No, I don't think it would create any problems. I think it would bring more certainty into the process. And by the way, that is a reason why we are asking for the 5-year authorization bill this year, so we have a better way of planning ahead. Research can't be done in a day, or, as I have pointed out before, in a year. Many of these programs take 4, 5, 10 years. Having a longer horizon, I think, is better. I hope I was short enough.

MEASUREMENT OF NSF MEETING ITS GOALS

Senator PROXMIRE. Earlier this year you announced that not only was the Foundation requesting a 17-percent increase in its budget in fiscal year 1988, but the administration was committed to doubling your budget over the next 5 years. You pointed to these increases as part of, and I quote, "A national effort to bolster our economic competitiveness internationally and preserve our lead in science and technology."

Now I hope to ask you a number of specific questions regarding just how we do this as we break down your budget request, but could you tell us now what benchmarks you will use to measure whether or not the Foundation is successful in meeting those twin goals of bolstering international competitiveness and preserving our lead in science and technology?

It just seems to me that that is a general statement. It is hard to hold you to it. How do we measure your success? What quantifiable goals have you set for the Foundation, other than doubling your budget over the next 5 years?

Mr. BLOCH. I think you can measure us in a number of ways. Let me say right from the outset, that there is no single number. You can't look at the bottom line, like you do in industry, on the profit and loss statement. That is certainly true, but you can measure us in many ways.

What have we done in terms of attracting people to science? How many people have we educated? How many people have gone through the process because they had support from NSF? That is one measure that has to do with the human education part.

Senator PROXMIRE. Let me just interrupt to say, we have done so marvelously in science in terms of winning Nobel Prizes and all kinds of recognition, but we make these breakthroughs and the Japanese and the Germans and so forth exploit them.

Mr. BLOCH. That is very true. Let me say one thing about Nobel Prizes, that is the past. That says something of how well we have done in the past. That is work that was done 10, 15 years ago. The work leading to one of the last Nobel Prizes was done 40 years ago. That doesn't say anything about the future.

While we have come up with all of these major breakthroughs, insights, discoveries, inventions, somebody else exploits them. The engineering research centers were put in place exactly for that particular purpose, so that we get a closer marriage between the knowledge generated in universities and how it is being applied in the private sector.

This question of technology transfer that everybody talks about is really knowledge transfer. It is not technology transfer; it is knowledge transfer. It is something that one can't legislate. One can only succeed by having people work together. That is why these centers—and it is not only the centers, it is the industry-university cooperative programs as well—that, hopefully, will help this process.

Senator PROXMIRE. Mr. Bloch, 10 or 15 years from now I will not be here. Younger Senators, like Senator D'Amato, will be here and he will be here probably 30 or 40 years to come. How will they measure whether or not the huge increases you are asking, at a time when we are cutting everything else, including national security, have lead to success or failure?

Mr. BLOCH. They will know by the people that we educated if they were capable of doing the needed work. Second, as I mentioned before, if you trace back, and you can do that 10, 15 years from now and looking backward just like you can do today, how many of the new technology companies, how many of the new industries, how many of the existing companies have survived because they have had new technology available to them. A lot of that technology will have come out of universities.

Look at semiconductors. Though in horrible economic shape today, this is an industry that was really brought about as a result of university research. Computers, the same way. Biotechnology is a coming industry. I think you can measure by looking back.

PRODUCT DEVELOPMENT AND MANAGEMENT REQUEST

Senator PROXMIRE. You are requesting $95 million for program development and management [PD&M] in fiscal year 1988, an increase of 20 percent above your current budget.

Can you tell us in a nutshell why you need an increase of this magnitude in view of the fact that you are only increasing your staffing by 30 positions?

Mr. BLOCH. Let me ask Sandra Toye to address the problem. She is the officer in the Foundation with the responsibility for our budget.

Senator PROXMIRE. Ms. Toye, go ahead.

Ms. TOYE. The primary impact on the PD&M budget has been the changes in legislation regarding federal pay and federal retirement. Those have been major impacts on personnel costs and, as you see, most of our PD&M is in personnel costs.

The other aspects have to do with truly uncontrollables such as rent for a GSA building. We are also asking for funds to fully fund the number of allocated FTE's we have now. This is another area which has been a growing problem for us. Our emphasis on scientific and engineering personnel, and because we have computerized our workplace, has caused a tremendous shift in the mix of the workforce. The number of administrative and support people is much smaller, while the number of science and engineering specialists is larger. We have a situation where we literally cannot pay fully the numbers of people we are theoretically able to hire.

Senator PROXMIRE. Can I ask how much of that 20-percent increase is because of a shift in the work force?

Ms. TOYE. We have had a shift of about 60 out of 1,174 in the last 2 years, from administrative people with an average salary of, maybe, $15,000, to scientific personnel with an average salary of $60,000.

Senator PROXMIRE. That is about 5 percent of your 20 percent.

Mr. BLOCH. Senator, could I add something to that, please?

Senator PROXMIRE. Yes, go ahead.

Mr. BLOCH. We have a special focus on PD&M. The Foundation is committed to keep that at a level of 5 percent or less. As you notice, over the years it has been dropping as a percent of the total and we are committed to continue to do that. I think that this is a lean operation. People are working very hard. They are working very long hours. They are very dedicated. We have tried to make things easier by absorbing an increasing workload through the use of work stations and automation, instead of adding people. I think we have focused on that particular problem.

Senator PROXMIRE. Your justifications are further expanded use of automation as having resulted in increased productivity.

Mr. BLOCH. Yes.

IN-HOUSE PRODUCTIVITY

Senator PROXMIRE. How much has your in-house productivity increased over the past year, and what kind of an increase do you anticipate in fiscal year 1988?

Ms. TOYE. I think a 1-year time scale is a bit short. Let me try, if I may, another way.

Senator PROXMIRE. I would like to know how much it has increased over the last year. I realize it is a short scale, but give us that figure and then go ahead.

Ms. TOYE. Let me say this. Last year we had a flat budget. Over the last 5 years our budget is up by about $700,000 and our staff is down by 200 positions. The number of proposals over that period is up.

Yet we are handling those proposals with a staff that is 200 positions fewer than it was in 1981. We are strictly a people driven organization. We have no hardware other than the computers and typewriters on our desks.

Mr. BLOCH. Numbers don't necessarily describe this particular situation in total. I am convinced, and I can't prove it to you, that the complexity of what we are doing has increased significantly. We have many programs that cut across the whole Foundation: minority programs, women's programs, that are small in nature, small in dollars, but that require a very large effort on the part of the NSF staff. As Sandra has pointed out, the workload has been increasing even if you just count submissions. But beyond that, the complexity is increasing. Many of the center activities that we have put in place demand a lot of time.

USE OF IPA'S

Senator PROXMIRE. The Foundation is currently paying 53 academicians who are on assignment from their respective colleges and universities.

Committee staff has determined that you are paying one of these temporary employees $98,700 a year. In another case, one temporary employee is costing the government, including fringe benefits, over $134,000. How can you justify paying these personnel more than you receive for the excellent work you do? [Laughter.]

Mr. BLOCH. I come cheap, Mr. Proxmire. [Laughter.]

In all seriousness——

Senator PROXMIRE. I mean in all seriousness.

Mr. BLOCH. I know you do. Let me answer it in all seriousness.

The problem that we have is really the point. We need people at certain organizational levels, such as division directors, program managers, assistant directors, that are on the forefront of technology. We have been able to attract people for a period of time, 2 years, sometimes only 1 year, from universities. We have to pay them at least what they are getting at their home institutions. Otherwise, they are making too great an economic sacrifice and are losing in the process.

They are giving up a couple years of their life, in terms of research, to come to the Foundation to help us out. It is a cheap way of getting the human resources that we need. We don't need people, we need good people, and we need people that understand what research is all about. Very frankly, we are buying competence.

Senator PROXMIRE. You need good people, but you don't need any better people than NASA or some of the other federal agencies. They have to hire quality people. That seems like a lot of money.

Mr. BLOCH. The ground rule is, they are not making any money coming here, they are not losing any. That is the ground rule.

When you say NASA needs good people, I agree NASA needs good people, and I know they have similar kinds of arrangements. Since we need these people to run our operation, we have to pay for these people. They are worth the money.

Senator PROXMIRE. These other agencies aren't getting them. You are the No. 1 winner in the whole government in asking for such a large increase for a major agency. Is anybody else asking for a 16-percent increase?

Mr. BLOCH. Yes, the Department of Defense.

Senator PROXMIRE. Not 16 percent, 3 percent.

Mr. BLOCH. No, I am sorry, 17 percent in R&D.

Senator PROXMIRE. You are talking about certain parts of the Department of Defense, you are not talking about the Department of Defense overall?

Mr. BLOCH. No, I am not, but we don't make missiles either, but we do research and so do they.

Senator PROXMIRE. The federal personnel manual requires the agencies to, and I quote, "assure that both federal and nonfederal organizations share equitably in the costs associated with assignments." You don't seem to have applied that standard to your temporary employees. Can you tell us why?

Mr. BLOCH. In certain cases, we have done that. There is some cost sharing with certain individuals. We haven't done that across the board because we just couldn't negotiate that kind of a contract with some of the universities. Let me point out that the law allows us to use cost sharing or no cost sharing.

Senator PROXMIRE. Thank you, sir. My time is up.

Senator D'Amato?

Senator D'AMATO. Thank you, Mr. Chairman.

PREPARED STATEMENT

It is good to see Mr. Bloch, and I think the Foundation is doing a good job. I have a statement that I would like to submit for the record.

Senator PROXMIRE. Without objection, it will be submitted in full.

[The statement follows:]

STATEMENT OF SENATOR D'AMATO

NATIONAL SCIENCE FOUNDATION

Mr. Chairman, I am pleased that you are holding these hearings on the fiscal year 1988 budget for the National Science Foundation and the Office of Science and Technology Policy.

The NSF fiscal year 1988 budget request of $1,893,000,000 represents an increase of 16.7 percent over fiscal year 1987. Several programs have been targeted by the Foundation for special emphasis in fiscal year 1988. I am especially pleased by the attention the NSF is giving to programs for education and human resources development. To develop our nation's scientific talent pool, it will be important that we focus not only upon our universities, but on precollege programs as well. I am pleased with the initiative the NSF has shown in this area.

In addition to it's strong disciplinary programs in the sciences, the NSF is proposing the establishment of interdisciplinary science and technology centers. The fiscal year 1988 budget proposes that 15 such centers be established to be modeled upon the Foundation's engineering research centers program. I am interested in hearing more about the Foundation's plans in this area.

Computer graphics technology is an emerging advanced technology field of research and development. This technology can provide enormous benefits to the United States. It has the potential to provide scientific, defense, and economic benefits for our nation. Thus, I look forward to hearing whether NSF plans any initiatives in the field of computer graphics research and development. We must make programs available for further development of equipment, infrastructure, instrumentation, and facilities.

Science, engineering, and mathematics research and development is crucial for the continued growth of our nation. Thus, the NSF has a vital role to play in facilitating this mission. The fiscal year 1988 budget proposal is a positive step in that direction.

OFFICE OF SCIENCE AND TECHNOLOGY POLICY

Also instrumental in advancing scientific and technological achievement in our nation is the Office of Science and Technology Policy [OSTP]. The unique mission of the OSTP is to provide coordination and policy assessment of the research and development programs of the federal government.

I am pleased that the OSTP has targeted programs in space science and technology as priorities for the future. An increase in NASA's budget from $4.2 billion in fiscal year 1987 to $4.5 billion in fiscal year 1988 would provide funding for two new space initiatives. The global geospace science program would expand international cooperative efforts to investigate the interaction of the Sun with the Earth's environment. The civil space technology initiative would explore a broad range of space technologies. The OSTP's support of these initiatives, as well as of our other major flight projects, helps to assure this nation's continued leadership in space.

The activities of the OSTP have facilitated the accomplishments made in the United States toward science and technology advancement. In the years to come, it will be ever more important that we have agencies that continue to increase the contributions of science and technology to the national goal of improved economic competitiveness. Increased collaboration among agencies will help us attain this goal.

Thank you, Mr. Chairman.

SUPERCOMPUTERS

Senator D'AMATO. I have one or two questions, and then some further ones, Mr. Chairman, that I would like to submit in writing to get some detailed responses.

Mr. Bloch, in 1984 the Foundation developed an advanced scientific computing initiative to provide researchers with access to supercomputers. I understand that the Foundation is cutting back its funding for phase I of this program.

I am wondering if you could explain this, and some of the implications? I intend to follow up later on with some other questions with respect to it, but what are the Foundation's plans for phase I? When will they be completed, and what is the effect with respect to phase II, the phase II centers, and particularly the center at Cornell University?

Mr. BLOCH. Let me explain first the difference between phase I and phase II. Phase II centers, of which Cornell is one, there are five of those in existence and they were established in 1985.

Prior to that time, we tried to buy computer time temporarily from existing centers, and those were called the phase I centers. We had agreements with the individual centers. By the way, some of them were

in industry, one was Boeing, for instance. Some others were in the universities. It was made very clear that this was a temporary arrangement that we had with those centers.

It was made very clear that once our phase II centers were active, that that was the more efficient, lower cost way of providing the same kind of a resource. The phase I centers were put on notice that we would phase them out. We have done this, by the way, except for about $1.5 million in one center; namely at the University of Minnesota. All the other centers have been phased out. They knew that beforehand. That was our plan. There was a rational reason for that particular plan, and I know some of the centers are unhappy because they have lost one source of support.

Senator D'AMATO. It is important that they get the facts on the record, and that is why I am bringing this to your attention.

What are the implications then, if any, as it relates to the phase II centers?

Mr. BLOCH. There are no implications to the phase II centers. The phase II centers have been established. We have funded the phase II centers. They are coming on stream, have been on stream. Some of them are further ahead than others. There are other requirements. We have an obligation to upgrade those centers, to make sure that they stay at the leading edge of that particular fast-moving technology.

The center managers are coming in frequently. I know that they have been in to see Congress to discuss the needs they have. Some of these needs we can satisfy and others we cannot. We are operating on a tight budget. I was asked yesterday in another committee what our shortfall was for that budget. On the order of about 10 percent, probably.

If we had 10 percent more money people would be more satisfied. We are trying to do the best with these centers under fairly tight controls. The centers are well and alive and we will keep them well and alive.

Senator D'AMATO. Thank you very much.

Mr. Chairman, as I said, I do have several other questions which I will submit to Mr. Bloch, for the record.

WISCONSIN'S STANDING AT NSF RELATIVE TO OTHER STATES

Senator PROXMIRE. Mr. Bloch, I don't want to be parochial, but I am going to be parochial for a minute.

I noticed that you have your program grants and contracts by state, and you have California with $189 million, Massachusetts with $108 million, New York with $145 million, Wisconsin with——

Senator D'AMATO. That is very good, Mr. Chairman. We have to get it up a little bit, that is why the phase II question on Cornell. [Laughter.]

We have got to work on Syracuse now.

Senator PROXMIRE. The Big Apple, you know, they get everything. Wisconsin $21 million.

Senator D'AMATO. We have to improve that, too.

Senator PROXMIRE. We sure do. We have a university there that does more research for the federal government than any state university in the country by a substantial margin.

Somehow the National Science Foundation has it way down the line, below West Virginia, Washington, a number of other smaller states.

Why is that? Could you give us just an indication? We are very proud of our university, particularly in the science area. It is outstanding.

Mr. BLOCH. I think you should be proud of the university. The university is doing extremely good work. We have major programs going on there. The Aladin ring at Madison, a very important synchroton light source ring, is a very important installation. We nurtured it along; we supported it. We are still supporting it, obviously. It has done very, very well.

Many other activities in that university are certainly at the leading edge. I can't tell you specifically, and to satisfy you, why Madison is where it is, or why the University of Wisconsin is where it is. But let me assure you that in my opinion, it is a very important university. It's high standing has to do with the number of submissions from Wisconsin. It also has to do with the activities they undertake.

As you know, we are supporting the natural sciences, behavioral sciences, we are not supporting medicine. That is NIH's mission.

Senator PROXMIRE. The reason I ask that is because we do so well with the National Institutes of Health, with DOE, with NASA, with EPA, with the Defense Department, but with the National Science Foundation, we don't do nearly as well.

Mr. BLOCH. I don't know what you mean by that.

Senator PROXMIRE. I am talking about scientific works.

Mr. BLOCH. I don't know what you mean by "doing well."

Senator PROXMIRE. By doing well, I mean we have a very nice convenient measure. We have 2 percent of the people, we pay 2 percent of the taxes, et cetera. We figure that if we get 2 percent of the return, considering that we are competitive, we, of course, shouldn't have anything unless we can offer services that are highly competitive. But we get less than 2 percent from the National Science Foundation.

Mr. BLOCH. We made a study of all the states, and if you look at the research grants from universities and colleges on the quality scale, the University of Wisconsin, or the whole state, is really right up there. We can send you a study.

Senator PROXMIRE. I hope you will and I hope you will not only give it to us, but think long and hard about it.

[The information follows:]

WISCONSIN

To summarize, it is noteworthy that in fiscal year 1986, Wisconsin received $22 million from the National Science Foundation [NSF], or about 2 percent of all NSF funds. Wisconsin ranked 15th among the states in terms of funds received from NSF.

MATHEMATICAL AND PHYSICAL SCIENCES FISCAL YEAR 1988 REQUEST

The next question is this, while the Foundation's budget is scheduled to increase 16.5 percent, you are proposing an increase of 10.7 percent in the mathematical and physical sciences program. That is the smallest of all the research and related activity increases you have recommended.

Is that an indication that this program has fewer opportunities for enhancing economic competitiveness? It would seem to me that mathematical and physical sciences would be right up there in front.

Mr. BLOCH. No, that is not an indication of that, at all. Let me also point out to you that it is the biggest directorate in the Foundation, so if you look at the absolute number of dollars, you will see it is right on top.

Senator PROXMIRE. It should be, but it is not getting a proportionate increase.

Mr. BLOCH. It is getting an increase of 10 percent, which is not proportional to the increase of the total Foundation, but I think it would be the wrong strategy and it would be really an admission of bad management if everybody would get the same amount of increase. You have to look at the needs.

Senator PROXMIRE. Let me pursue this a little further. Your justifications say that the National Research Council identified, and I quote, "Major structural problems with math sciences research and that these have been addressed by the Foundation." Can you tell us how you are dealing with those structural problems?

Mr. BLOCH. Let me take the math one and let me tell you what the structural problems are. We have neglected math over the years. Over the last 3 budget cycles, over the last 3 years, we have put considerable amounts of money into mathematics. Mathematics has had the biggest increase in that particular directorate 3 years running.

When Gramm-Rudman hit we protected mathematics. We didn't take 4.5 percent out of mathematics. The Controller says, "With the approval of the committee," which is true. We protected mathematics. We asked the mathematics community to help themselves also and go after some of the other agencies, which they have done, by the way.

NSA, for instance, together with NSF, has put a lot of money into mathematics. I think mathematics has seen a big increase compared to what the rest of that directorate has seen.

MICROTRON FUNDING

Senator PROXMIRE. You are requesting $131 million for your physics subactivity in fiscal year 1988. That is an increase of about 12 percent above the current budget of $117 million. Of course, your major initiative in that area will be a microtron at the University of Illinois. That will require incremental funding of $1.7 million and the redirection of $1.4 million in your 1988 budget. The total federal commitment would be $19.9 million over 4 years for Illinois.

Can you tell us how the $1.4 million in redirected funds would otherwise be used?

Mr. BLOCH. Let me ask Dr. Nicholson, the Assistant Director of Mathematical and Physical Sciences, to come up and address that question.

Senator PROXMIRE. Dr. Nicholson, go right ahead.

Dr. NICHOLSON. At the University of Illinois there already is a cyclotron, with an energy of 87 million electron volts. We support that operation and the research there. The budget to Illinois right now has $1.4 million in it, which is for research and development on construction of a 450 MeV accelerator. The redirection would be to take that $1.4 million that is now going to R&D or preconstruction activities for the 450 MeV cyclotron.

Senator PROXMIRE. Let me ask you, why isn't the proposed microtron being funded through the Department of Energy?

Dr. NICHOLSON. Both NSF and the Department of Energy support research in nuclear physics. This area is nuclear physics. The construction projects are considered by a joint committee, Nuclear Sciences Advisory Committee, that reports both to the National Science Foundation and the Department of Energy. They review all construction projects and recommend which agencies would be most appropriate.

In this case, it has been reviewed two times by that committee. In the case of Illinois, this is a research project facility that we have supported there for a number of years and, therefore, the recommendation was that the National Science Foundation would handle that construction project.

Senator PROXMIRE. Can you plan to tell us how much you plan to devote to the support of research to the proposed microtron facility when it is running?

Dr. NICHOLSON. Right now, in the operation budget there is about $3.1 million, and it would probably go up by, I would guess, another $1 or $2 million in a steady state, once the construction project was finished.

Senator PROXMIRE. It will cost the Foundation $5 million a year.

Dr. NICHOLSON. Perhaps $5 million a year. We are spending now $3.1 million on operation of the present facility, plus $1.4 million in the R&D effort.

OVERLAP WITH EPA

Senator PROXMIRE. You are requesting $27.75 million for critical engineering systems. That is an increase of 13 percent over the current year estimate. Within that request is a program element for environmental engineering, which would receive $4.38 million, a 9.5-percent increase in 1988.

The specific environmental engineering subjects which would be studied would include the treatment of hazardous chemical waste, ground water contamination, and design and operation of water resources systems.

The Environmental Protection Agency, which this subcommittee also funds, has requested $50.6 million for hazardous chemical research and $49.3 for water-related research. That is a total of about $100 million in EPA support, compared with your $4.38 million budget.

In reviewing your grants for 1986, I note that there seem to be several which clearly overlap EPA's research activities. How do you justify spending $197,685 for a project titled, "Biofiltration of Water," a grant that develops slow sand filters for small systems, a subject which EPA has been pursuing for over 5 years, funding its own grantees for precisely the same research?

Mr. BLOCH. Let me ask Dr. Nam Suh, the Assistant Director of Engineering, to answer this particular question.

Senator PROXMIRE. Dr. Suh?

Dr. SUH. First of all, there is a continuing discussion between the National Science Foundation's program and the EPA so that we can eliminate any kind of duplication. In fact, NSF does not get involved in areas related to environmental regulation and other areas that are the responsibility of EPA.

When we review our proposals, we enlist the help of EPA personnel from the research laboratories and we do make sure that they are aware of what we are doing and we are aware of what they are doing.

Whether or not this particular issue is overlapping in two areas, I am not sure, but in my opinion, even though topics may sound the same, the approach to the problem may be quite different. We support university researchers who do fundamental research, and the way they approach the problem may be quite different than the way the EPA laboratories approach this particular issue.

Mr. BLOCH. Let me suggest, Mr. Chairman, that we take that particular example that you cited and run it through for you and give you our assessment of what overlaps, duplicates, or augments what EPA is doing, and submit that for the record.

[The information follows:]

BIOFILTRATION OF WATER

The project titled, "Biofiltration of Water" is phase II of an award made through NSF's small business innovation research [SBIR] program to Dufresne-Henry, Inc., of North Springfield, Vt. In his phase I work, the principal investigator, Dr. Gordon Pyper, found that a concept, which he had previously studied with EPA support, for small community water supply systems serving 200 to 400 homes, was potentially feasible for adaptation to individual home water systems and those serving up to 10 homes. However, this required solving fundamental engineering design problems inherent in a scaling-down process. The phase II SBIR project is expected to lead to the development of a simple and inexpensive device with considerable commercial potential for individual home water systems.

Representatives from EPA's Office of Research and Development and the Office of Drinking Water took part in the review process for both the phase I and phase II awards. Other reviewers for both phase I and phase II were also selected for their knowledge of past and current research on topics being evaluated. The record of review shows no evidence that the work being done is precisely the same research as that pursued by EPA for over 5 years.

Through its environmental engineering program, NSF supports research that is intended to improve knowledge of the ways in which organic contaminants of ground

water move through aquifers. The results of this research may be helpful to EPA in support of its mission responsibilities relating to hazardous waste management. Coordination with EPA's Interagency Groundwater Protection Committee and by joint agency support and participation in meetings of the National Research Council's Water Science Technology Board.

Senator PROXMIRE. Let me give you a couple of other examples quickly here, the same kind of thing. You spend $128,000 for a grant titled, "The Transport and Fate of Organic Contaminants in Groundwater Systems," which seems clearly to overlap research underway in EPA to support the hazardous waste ban program.

You spend $107,000 for a project titled, "Identification of Organic N-Chloraminesin Municipal Wastewater," when it replicates in-house EPA and EPA-sponsored university research on analytical methods for chloramines which has been underway for several years.

Can you tell us what mechanisms are currently in place to ensure that grantees aren't shopping around by coming to you after they have been turned down by EPA, or vice versa?

Dr. SUH. We have had an extensive meeting with EPA personnel as to what kind of research they support and what kind of research we support at the National Science Foundation. They told us that at the present time, EPA cannot conduct fundamental research on any of these topics because they always look at the application-end of these issues.

After having had discussions with the laboratory directors, as well as the man in charge of the research programs at EPA, we have concluded that the kind of effort we are undertaking at the National Science Foundation has to continue if we are to make progress in understanding the basic aspects of these issues.

Senator PROXMIRE. You have a formal mechanism in place to check?

Dr. SUH. This was an ad hoc meeting we had with EPA lab directors as well as the man in charge of the research program last year. It was clear that they are not really conducting fundamental research in these topics. They were very disturbed by the fact that the support that we are providing to this very important area is rather minimal.

STRUCTURES AND BUILDING SYSTEMS RESEARCH

Senator PROXMIRE. Let me ask you about a Golden Fleece candidate that I have here. You are requesting $4.3 million for structures and building systems research, a 13.2-percent increase. Now, I am sure that much of the research under this program is important for our economic competitiveness and the like, but there is one award I wonder about.

You are spending nearly $90,000 on fundamental studies in reducing the severity of injuries resulting from stairway falls. Your own project description indicates that stairs built today are essentially no different than stairs built 5,000 years ago.

There have been several studies conducted on this subject over the last 20 years. Can you explain just what this study will produce that will be truly useful? I know one person who argued that people are never injured when they fall down a stairway if they are intoxicated enough. They are relaxed and whatnot. [Laughter.]

Dr. SUH. Mr. Chairman, as far as that part goes, you may be perfectly right. As far as the intellectual content goes, what the research is all about, I will have to furnish an answer in writing, because I don't have the information with me at this time.

Mr. BLOCH. We will look at these areas and submit it for the record.

[The information follows:]

STAIRWAY FALLS

This NSF grant supports fundamental research at the Georgia Institute of Technology conducted by Dr. John Templer, a research architect, and a staff including engineering faculty. The study is primarily concerned with understanding the effectiveness of energy-absorbing materials which might be used to reduce injury from stair falls. In 1982 there were 1,203,041 stair accidents in the United States that resulted in injuries serious enough to require emergency hospital treatment; in addition, many thousands died from their injuries. During the past 20 years studies have been conducted on the causes of stair falls and how to improve the design of stairs to reduce the incidence of accidents. However, no one has paid attention to stair accident injury reduction and, in particular, to impact energy reduction design.

When a falling person impacts a part of the stairway or the surrounding area of the floor, some of the acquired kinetic energy is transmitted to the impacting surface. Depending upon the type of impact and the mechanical properties of the impacting surface (and subfloor), different types of motion, deformations, and stresses are created in the body of the fall victim. The type and the magnitude of these motions, deformations, and stresses are responsible for the type and the extent of injury. In the point of view of an engineering design of the impact surface and the associated subfloor, it is necessary to know how much energy is safe to be transmitted through the body in the form of deformation and stresses and how much energy should be absorbed by the impacting surface and the associated subfloor.

Conceptually, the idea of designing stairs that are less injurious is elementary, but there is little theoretical knowledge available from which to proceed. For stair accident research, there is no mission agency of the federal government that has any program to investigate building research issues associated with stair designs individually, or as a total system as in the case of this NSF-sponsored research.

The research is currently in progress and will be made available to engineers, architects, designers, and building codemaking authorities. In addition, Dr. Templer is completing a book dealing with stair accidents and injuries. It has been accepted for publication by the MIT Press.

Senator PROXMIRE. The Consumer Product Safety Commission is responsible for preventing injuries associated with ladders and other household hazards. Why shouldn't that study be supported through their budget?

Mr. BLOCH. Again, I would say the same thing.

Senator PROXMIRE. You see what I am getting at. In other words, my problem is there does seem to be a tendency for people to look for the soft touch. The National Science Foundation has a marvelous image, which you have earned, and people feel, "Well, we can give them a 16- or 17-percent increase even though we are cutting everything else, because nobody is going to complain." People know science is great. There is a feeling that you may be a soft touch, that if researchers can't get funding through some of the other agencies that are more carefully criticized and examined, they can come to you.

INCORRECT IMAGE OF NSF

Mr. BLOCH. I would like to respond to that. First of all, the image of a soft touch is not the image that we have. In fact, the complaints that I hear from the community-at-large is that we are not funding programs, grants, and submissions that are very important ones, and that are deserving of it from an intellectual viewpoint.

That is correct, because our cutoff level on the total Foundation basis is about 30 percent. I would say 50 percent of the proposals that we get are as good as the first 30 percent that we fund or there are small differences between the two sets. I don't think that we have the soft touch image in the community.

The second thing that you are obviously saying is: how are these programs important with regard to economic competitiveness or with regard to science? It is very difficult, obviously, to discuss a particular grant like the ones that you are citing, out of context with the total program. With 30,000 grants going through the Foundation, we probably have a few bad apples. I have no doubt about that, and we will try to do better in that regard. I think one has to look at the content of these particular grant proposals and see how they fit in with the totality of the science that is explored or the engineering area that is explored.

With regard to overlap, people are shopping around, and I should tell you that. You know that. We have good track of where people submit their proposals and many times we are funding one that was turned down by another agency because that agency didn't turn it down because it was a bad proposal, but because it didn't fit their particular program. There is some shopping around going on, no doubt about it, and I think we are aware of that, and some of it is proper.

EMERGING ENGINEERING TECHNOLOGIES

Senator PROXMIRE. You are requesting $19,380,000 for emerging engineering technologies, an increase of 23.9 percent in your current budget. That subactivity includes a bioengineering and research for the handicapped program, for which you are requesting $4,830,000 next year, an increase of 11 percent above the current level of spending.

Two studies you have funded with these dollars have to do with a study of the forces that are transmitted by a prosthesis for below-knee amputations, $232,000, and the use of electrical systems emanating from certain muscle groups to power artificial limbs, $333,000.

Why shouldn't those projects be funded through the prosthetic research program at the Veterans Administration or the neural prosthesis program at the National Institutes of Neurological and Communicative Disorders and Stroke? The Veterans Administration is also under this subcommittee and we fund them.

Mr. BLOCH. Again, I am going to make the same point. We have had a number of discussions, especially with NIH. We have a discussion going on with them right now with regard to their participation in an engineering research center. By the way, they are participating in the biotechnology center at MIT. It is very difficult to get an agreement

with them to co-fund these programs. Many times, again, these grants are basic research grants which do not necessarily fit in with the program of NIH, no matter how much money they are spending in some of these areas.

Senator PROXMIRE. Now, your bioengineering and research for the handicapped dollars also supported a $270,000 study to investigate flow through coronary blood vessels. The project description sheet points out that, and I quote, "The problem which this proposal addresses, coronary artery disease, is a major cause of death and disability and that the data which will come from this research should have a significant impact on health care delivery."

If that is the case, why isn't the research being supported by the National Heart, Lung, and Blood Institute which has a $930 million budget.

Dr. SUH. Could I answer that? If you look at most of the bioengineering and research for handicapped support we provide at the National Science Foundation, you will find that it is different from the research NIH funds. We are not funding projects that involve clinical tests or those that involve medical doctors. It is normally the proof-of-concept stage, the premedical stage, where the fundamental engineering principles get to be understood. Furthermore, the progress we are making on all of these projects has a bearing on other aspects of engineering research as well.

For example, in the robotics area, there is the idea of controlling lower body motions by using impedence control. That idea came from bioengieering research, so it is very unfair to simply look at the titles and then state that these things are supported by the other agencies.

Obviously, some will be supported by other agencies, but we are being very careful to make sure that our niche in the research support program will be quite different from that of NIH.

Senator PROXMIRE. The reason I am pursuing this is that it just seems to me that if this could be integrated with other coronary disease research initiatives—for example, support through the Heart, Lung, and Blood Institute—then you could make a determination on the basis of priorities whether a particular project should move ahead compared with other priorities.

When you have several agencies doing this by themselves, you don't get that discipline that forces you to make a judgment as to where you can best spend your dollar to advance the cause of fighting heart disease.

Dr. SUH. Mr. Chairman, the emphasis we are giving at the National Science Foundation is quite different from the emphasis NIH is giving.

Furthermore, one of the things I believe is that it is, indeed, dangerous to have only one body to determine priorities in research areas. In fact, we can maintain a healthy mixture of research projects when different groups look at the research priorities, because it is not as if one person is endowed with all the wisdom. I think it is important that we get the wisdom from all the different parts of the community.

Senator PROXMIRE. It isn't one person, of course, it is a study group.

Let me just ask, do you routinely discuss individual grant applications that may overlap with other agencies with these other agencies?

Dr. SUH. The way we review these proposals is by using panels. When we assemble these panels, we try to make sure that we have knowledgeable people from the community, which may include people from other agencies such as NIH and EPA, but there is no guarantee that every proposal we receive will be reviewed by NIH personnel. However, we try to have well-balanced panels of knowledgeable reviewers who go through these proposals so that we do justice to our program.

BIOLOGICAL, BEHAVIORAL, AND SOCIAL SCIENCES

Senator PROXMIRE. All right. Let me give you another example. You are requesting a total of $297 million for biological, behavioral, and social sciences in the coming fiscal year, an increase of about 15 percent above your current budget. In examining your justifications, the staff was particularly struck by the extent to which the work you are supporting in this area overlaps with the biomedical research supported through the National Institutes of Health, which has a current budget of $6.2 billion.

To take one example, you are requesting a 25-percent increase in psychobiology. Your $6.3 million psychobiology budget would be devoted in part to, and I quote, "The neural structures and processes and the biochemical events which underlie the phenomenon of learning, memory, and information utilization." At the same time, the National Institutes of Neurological and Communicative Disorders and Stroke plans to spend $225 million on biological basis research in fiscal 1988. This program, to quote the Institute's justifications, "is primarily responsible for stimulating and supporting research to provide new information on the structure and function of the neurological and communicative systems."

These program descriptions seem to be virtually identical. Why shouldn't we simply shut down your neuroscience activities and transfer them to the National Institutes of Health?

Mr. BLOCH. Dr. Kingsbury is the Assistant Director for BBS.

Dr. KINGSBURY. I think it is important to recognize that there is a wide diversity in how one approaches the study of neurological systems. One goes back and examines the history of neuroscience development, one finds that the National Institutes of Health, in general, has focused, as it well should, on human biology and human disease and using mammalian systems. If you look at the historical development of the neurosciences in NSF, you will find that much of its emphasis has been on the development of new approaches, of new techniques and new simpler systems to study neurobiology.

It is incredibly difficult to study the totality of a neurosystem in a mammal for two reasons: (1) I think we are increasingly finding ourselves in the difficult situation using the mammalian species for this kind of work; (2) the complexity is enormous with thousands and

thousands of neurons. The simple invertebrate systems have now been amenable to study.

This has been the focus that our programs have taken. These are very fundamental basic studies and tend to be at a totally different part of the neurobiology spectrum than those studies that are funded by the National Institutes of Health, which have as their focus relationships to human disease, even though much of it is very basic.

Senator PROXMIRE. Can you tell the committee why the administration is requesting a virtually level budget for research in the structure and functions of neurological and communicative assistance by the National Institutes of Health, and yet supporting increases of 14 percent for neurosciences, 31 percent for integrative neurosystems, and 25 percent for psychobiology in your budget? They believe your budget will get easier approval by the Congress?

Dr. KINGSBURY. I think that if you look at the figures, you will find that our numbers are very small and the percentages are somewhat misleading. The NINCDS budget is substantially larger than all of BBS.

I think that the focus—again, I cannot address the priority setting at the NIH, I think it would be presumptuous to do that. What I can address is the approach that we are taking. We see today the neurosciences as a growing opportunity. The computer-based modeling system, the use of simple, limited number of neuron invertebrate learning systems has opened up an entirely new area of neuroscience. It is a community that is quite different than the NIH community, and for that reason we have decided to put resources into that area.

Mr. BLOCH. Let me say, Mr. Chairman, if you permit me, that it is certainly not for the reason that you suggest, that the administration thought the NSF budget would have an easier time getting through Congress. If I reflect over the last couple of years, I wish I could have gotten for the Foundation the increases that NIH got from Congress.

Senator PROXMIRE. You are providing $50,000 to Rockefeller University for a study of the neural control of vomiting. This work involves an examination of the role of descending brainstem respiratory neurons during vomiting.

To what extent did you consult with the Neurological Institute before making that award?

Dr. KINGSBURY. The NIH and NSF share data bases on every award that is granted. If one looks at the NSF award, one must list other sources of support and other places where awards have been submitted, so we know when a particular award has been submitted to a particular institute.

Many of our study panels have NIH members on them. We do that on a frequent basis. We check everything through an NIH computer system.

Second, this particular kind of a study is one in which we are following a particular neurological activity that is measurable as part of a fundamental study on the structure of the nervous system.

Senator PROXMIRE. We will see how good that system is. Let me ask you, do you know if the grant recipient of the grant I just described, the $50,000 to Rockefeller University, Dr. Miller, is also doing work for NIH?

Dr. KINGSBURY. I cannot tell you that. I do not know that level of it.

Senator PROXMIRE. Of course. What I mean is for the record, would you supply that?

Mr. BLOCH. Of course, we can do that.

[The information follows:]

NEURAL CONTROL OF VOMITING

Dr. Miller has been, and is currently, supported by both the NSF and the NIH. His work related to the neural control of vomiting is shared by both agencies, with no budgetary overlap. Dr. Miller's salary is derived: 25 percent from the NSF grant and 75 percent from the NIH grant. Both agencies are supporting Dr. Miller. However, each is supporting and is interested in different aspects of his research.

While there are clinical aspects of importance in Dr. Miller's research, NSF support is focused on the more fundamental understanding of the coordinated action of the respiratory muscles and the role of brain stem neurons, with special emphasis on neuromuscular control during the reflex of vomiting. The NIH support focuses more on the clinical implications of this research.

CELLULAR BIOSCIENCES RESEARCH

Senator PROXMIRE. You are requesting $60,590,000 for cellular biosciences research in fiscal 1988, an increase of 16 percent over your current budget.

In your justifications you indicate that these funds will support research into the genetics and cellular biology of plant systems, as well as basic mechanisms of genetic regulation in both plant and animal cells.

The National Institute of General Medical Sciences is supporting about $151 million of research into the cellular and molecular basis of disease and is spending $170 million on genetics research this year. This research involves plant models.

For example, NIH funds were spent on research to demonstrate recognition and attraction between unlike cells using a simple plant model, and support was also provided for a study of DNA similarities in organisms as diverse as yeast and fruit flies. These illustrations make it clear that NIH is also supporting very basic research on cell structure and genetics.

Could you distinguish the work you do from the work being supported by the National Institutes of General Medical Sciences?

Dr. KINGSBURY. We work very closely with the Institute of General Medical Sciences and, in fact, there are several program officers in GMS who had at one time been program officers at NSF. These are very highly coordinated. There are several group meetings. There is a biotechnology interagency group that meets on approximately a monthly basis. There is a plant sciences group that meets on a regular basis with the goal in mind to follow the development of the field and to follow the support levels and the support approaches given by individual agencies.

There is a significant difference in the approaches that different agencies take to funding. We are funding much different kinds of genetic studies than GMS is funding in most cases. Clearly, one can never differentiate with absolute certainty between the study of a genetic system of one plant and the genetics of another without going to the level of the specific goals of an individual research proposal.

But, in fact, there is a high degree of coordination and there is a much different goal toward the development of those project areas.

ANTHROPOLOGY PROGRAM

Senator PROXMIRE. Mr. Bloch, you are proposing a budget of $8,220,000 in fiscal year 1988 for your anthropology program, an increase of $640,000, or 8 percent. Some of your past awards in this area indicate to me that we might be able to find some savings here to balance increased support for areas of higher priority.

Let me give you three examples. First, you have devoted $28,000 to study the role of nonmarriage in rural Irish family systems. The research will do a year of ethnographic research in Ireland on the importance of nonmarriage to the normal function of Irish society. This will involve the analysis of the roles of bachelor and spinster among families over the life cycle of the family. The research is considered important because it will place the role of bachelors and spinsters in a more balanced perspective in Irish society than they are normally accorded.

According to your grant approval sheet, and I quote, "The study of the social functions of nonmarriage can contribute valuable knowledge to help society control population growth." Can you tell me how this kind of knowledge will contribute to population control in this country?

Mr. BLOCH. Dr. Kingsbury has all the good programs.

Senator PROXMIRE. I will tell you my mother's parents were Pat Flannagan and Rose O'Reilly. They were both born in Dublin, and I think this study, if it goes back that far, might embarass me. [Laughter.]

Mr. BLOCH. We will make sure that it doesn't. We won't divulge any names.

Dr. KINGSBURY. Let me address two issues here. One is the goal of much of this work, and second, the knowledge as it involves the use of databases that have been derived from countries outside the United States.

Part of the reason is that these databases are unique and allow us to develop methodologies for the study of social structures, because of the nature of the data collection, much of which has gone on over a very long period of time.

This particular project that you are talking about, together with several others, are really focusing on the role of social structure in the coherence of the family unit, the coherence of structures within society and the role that those structures play in the balance and coherence of the society, and in the social mobility of members of the society.

There is involvement of databases derived overseas, because they are unique. We don't collect those kinds of data in the United States; We just don't have it available. We haven't had the history. We have much greater levels of geographic and social mobility than some of these countries have, and for that reason some of these things are not available here.

Senator PROXMIRE. Another anthropology grant is titled, "Ethnoastronomy of Indonesian Sailors and Swidden Farmers." This award, according to the grant sheet, will allow the principal investigator to study the cultural and social context of astronomical knowledge by two groups in Indonesia. Specific navagational techniques in one group and the significance of the indigenous astronomical knowledge to food production, as well as religion and cosmology, supposedly will make an important contribution to the synthesis of cultural knowledge about the environment and scientific observations about the environment.

Reading from the project description sheet, "specific navagational techniques of the one group and observation of the skies by members of the other group, and the significance of the indigenous astronomical knowledge to food production, as well as religion and cosmology, will provide an important contribution to the synthesis of cultural knowledge and so forth."

Can you tell me how the quest for knowledge would be affected if tax dollars were not spent on that project?

Dr. KINGSBURY. I think the point of this is that we were looking for an alternative to supporting NOAA satellites. [Laughter.]

Senator PROXMIRE. I guess it would be a bargain.

Dr. KINGSBURY. That was our feeling as well, as we reviewed it.

Senator PROXMIRE. Indonesian sailors and Swidden farmers, what are Swidden farmers?

Dr. KINGSBURY. I am sorry, I don't know the answer to that. That was one thing I failed to research adequately.

Senator PROXMIRE. Just one more little fleece, I have got here. A third anthropology award provides almost $10,000 for dissertation on the bull fight in Spain as a cultural manifestation of the national character. The student will look at the waxing and waning of the popularity of the bull fight over time and its relationship to political history in order to describe the dialectical relationship between nation and religion.

I am afraid the average taxpayer wouldn't want to devote his hard earned dollars to that kind of bull, even if it increased the sum total of human knowledge. But, seriously, haven't the cultural implications of bull fighting been studied to death?

Dr. KINGSBURY. The answer to that question I don't know. I am not a student of Spanish culture. As you pointed out, this was a dissertation award. It was the support of a graduate student who was learning methodologies for academic research, was developing skills of scholarship, and this was a project that was selected by that student and that student's mentor, and is one that was an approachable question, which presumably had some unexplored aspects.

Senator PROXMIRE. See why it seems to me that the NSF has the reputation of being, to some people at least, a soft touch? It seems to me that a few hours spent with Ernest Hemingway's writing would be superior to what your dissertation scholar was working on and would probably give you just as much understanding of the culture of bull fights.

Dr. KINGSBURY. I cannot address that because I was not involved in the development of this thesis project. I think, speaking for faculty members at universities around the United States, it is very unusual for a faculty member to have a student doing something that is not a new and unique experience. Major universities do not accept theses that are not unique and original contributions. One has to assume that that was the case. It was carefully reviewed by a panel of people who were expert in that field.

TWO-YEAR BUDGET

Senator PROXMIRE. I want to call on Senator Domenici. I wanted to inform him that we have asked every group that has come before this subcommittee about the 2-year budgeting, and they were all supportive of it, including Mr. Bloch, who was enthusiastic. Senator Domenici was the one who asked us to ask that question.

Senator DOMENICI. Thank you very much, Mr. Chairman. On that issue, Mr. Chairman, let me suggest to you that I probably left out one question that I should have asked. I will submit it separately, and I think you will be interested in this. I will also submit this part of that question on 2-year budgeting separately to the Department of Defense.

In this respect, I have been asking the agencies, and you have so generously, on my behalf, asked it here, how much of the budget is recurring. I would like to know how much we are just going through motions and how much the agencies are. Eighty or ninety percent of everybody's budget may be essentially the same each year, which lends a little credibility that the thesis that maybe we shouldn't be doing this every year But I will also ask the Department of Defense if it had a bona fide 2-year budget and 2-year appropriation, how much it thinks it could save, which I think is an interesting question.

Senator PROXMIRE. We will include that in the future, when we have our subcommittees here.

Senator DOMENICI. I have a hunch some say they can't save much, and some will say they could save a great deal.

Senator PROXMIRE. Senator, I am going to have to leave, I have an appointment at 11:45, and Senator Domenici will take over the chair until its conclusion.

Senator DOMENICI. I thank you for that. I did note, Mr. Chairman, I walked in just when the subject of population control was being raised.

Senator PROXMIRE. You are an expert on that.

Senator DOMENICI. Did I miss something there? Members of this panel don't usually qualify unless they have at least six or seven children.

Senator PROXMIRE. Except the chairman.

Senator DOMENICI. And it was the Irish they were studying, wasn't it?

Senator PROXMIRE. Right.

Senator DOMENICI. I have way too many children, and I am Italian. [Laughter.]

Senator PROXMIRE. That explains it. [Laughter.]

Senator DOMENICI [presiding]. I will try not to take too much of your time, but I must tell you, I had the problem of contributing to the population explosion as a young politician. That was in the days of zero population growth, if you recall. I was at a meeting where I knew I was going to be a villain and be given a real haranguing for contributing too much to population growth.

I really had no idea how I would answer that, but I thought it might be asked, so I was prompted by something to answer it this way. I had a letter in my pocket and I said, "Well, I will tell you. My mother and father had five children. One is beyond the age of having any children, and has none. Two are nuns and have taken vows of chastity. And what they did is each of them assigned me their rights." [Laughter.]

And it worked out perfectly, two, four, six, and two for myself; that was eight. So I was totally in tune as a family with the promotion of zero population growth. That ended the argument and nobody challenged the validity of my assignment rights. [Laughter.]

Mr. Bloch, I understand that the chairman has been somewhat concerned about your increased budget request. He is the chairman and he ultimately has to establish a mark consistent with what, under the budget process, is given to this subcommittee, with the concurrence of the full Appropriations Committee. I want to state, from my standpoint, that I am going to do everything in my power, in the budget process, to significantly increase that portion of the budget that goes to NSF. I will do what I can to see that NSF holds its weight in the subcommittee numbers, so that we can, indeed, grant the National Science Foundation a substantial increase.

I am reminded, and would like to state for the record, that competitiveness has become the real buzz word around town, the buzz word in the Congress, and the buzz word in this country. Frankly, it will become the legislative vehicle upon which all kinds of new proposals are hung. In the interest of competitiveness, we will find the most incredible proposals, all to promote something called competitiveness.

We have nothing to take NSF's place at this moment in history, and nobody is suggesting that any kind of consolidation or new institution replace it. I am reminded of David Packard's testimony about 3 weeks ago, which I can almost quote verbatim.

This distinguished gentleman is a Stanford alumnus and the second name at the Hewlett-Packard Co. He said, "The U.S. economic future is no longer based upon mineral resources and material resources, its future is plain and simple knowledge."

Obviously, this statement may be a little difficult to interpret. It may mean a lot of things to a lot of people. If I understand it correctly, the principle thrust for increased funding for NSF could be focused at the

kind of statement Mr. Packard made in his thesis. While we have great universities and a great education system, we have to, in some way, do better to promote excellence in all areas of knowledge or we will not remain competitive.

NEW BASIC SCIENCE AND TECHNOLOGY CENTERS

Having said that, one of the administration's initiatives is the establishment of new basic science and technology centers at a cost of about $50 million a year. Would you give us a status report on the progress being made with reference to these centers? Has NSF established criteria for the new basic centers? If so, what are the criteria? If not, what is your timetable?

Mr. BLOCH. I am glad to answer this question, Senator Domenici, but before I do that let me reflect for a few seconds, if you would permit me, on your introductory remarks.

First of all, I want to thank you for your support over the many years that you have given to the Foundation. You have been a great supporter, not only of the Foundation, but of basic research and universities in general. We appreciate that, and we know we can count on you again this year.

Indeed, competition and competitiveness is being touted all over town, but I think we have the legitimate right to tout it, because what we are doing is essentially the generation of knowledge and education. Both of these are very important, they underlie everything that we can do in the economic competitiveness area. If we don't have the right people, the right educated people at the forefront of technology and science, then we will be in a difficult situation.

By the way, David Packard's report has really been instrumental in influencing the National Science Foundation and the administration, and that is why you see the present budget request for the NSF.

Let me come to the centers. The centers are a new initiative, as you know. The President stressed it in his State of the Union, and we have the forerunner of these centers in operation; namely, the engineering research centers. We have asked the National Academy of Sciences to help us. First the National Academy of Engineering helped us 3 years ago to define what the engineering research centers should look like, how we should approach these centers, how we should govern these centers. We are asking for the same input, essentially, from the scientific community.

Senator DOMENICI. Excuse me, Mr. Bloch, I just received notice that that a vote is not only on, but I have about 3 minutes to get there. I am going to submit the five or six questions that I have to you for your response for the record.

I understand there is an outside chance that you might be back before this subcommittee; is that correct?

Mr. BLOCH. Tomorrow morning.

Senator DOMENICI. I will try to come tomorrow morning. I just want to leave you with this thought. I don't know why the national labor-

atories should not be included, both in the planning process and in the tentative criteria, for the new basic science and technology centers.

I believe to leave them out as possible partners with universities and the private sector is a very grave mistake, and I hope you have not really done that.

Mr. BLOCH. I don't think that we have done that. The science and technology centers, which the administration put forward, apply to all agencies, so it applies to DOE also. In fact, I have asked the Science Advisor to pull all the agencies together so that we can jointly plan.

Senator DOMENICI. I thank you.

SUBMITTED QUESTIONS

[The following questions were not asked at the hearing but were submitted to the Foundation for response for the record:]

Questions Submitted by Senator Proxmire

RESEARCH CENTERS

Question: On page 5 of your justification summary, you indicate that the 1988 budget includes a request for $529 million for centers and research groups. This is 28% of your entire budget request. I am concerned that you are initiating centers that you won't be able to adequately support over a 5-year period. For the Record, will you please identify all existing centers, as of 1987, and separately identify the new centers you want to establish in 1988. Then provide 5-year budgets for each of the existing centers as well as the newly proposed centers?

Answer: The amount proposed for centers in FY 1988 is $162 million, 9.9% of the Foundation's request for research and related activities. This represents a $50 million increment over FY 1987 support for centers ($112 million, 7.7% of research and related activities.) The balance, $ 369 million, is for group research projects.

1987 Centers

Industry-University Cooperative Research Centers
Engineering Earthquake Research Center
Materials Research Laboratories
Advanced Scientific Computing Centers
Minority Centers of Excellence
Biotech Mini Centers

1988 Potential New Centers

Additional Engineering Research Centers
Initiation of 10 - 15 Science and Technology Centers

It is important to keep in mind that we are talking primarily about centers with support in the range of $1 million to $4 million in the first year, with a level of about $3 million once stability is achieved. We are not including major facilities in astronomy, physics, etc. In FY 1988 we would increase from approximately 40 centers to about 70 centers. If you project 70 centers, future costs would be about $210 million a year for centers.

If the Foundation's budget is doubled, we would like to increase to 100 or more centers over the next five years -- at about a $300 million per year level, about 10% of the Foundation's research and related activities.

The controlling factor is the number of centers initiated. If we do not have the money, we will not initiate new centers.

ENGINEERING -- PRESIDENTIAL YOUNG INVESTIGATORS

Question: You are requesting $22 million for the Engineering portion of the Presidential Young investigators program, an increase of $5 million, or 29% above your current budget. If we approved this increase the program would have jumped from $12.5 million and 250

young investigators in 1986 to $22 million and 385 young investigators in 1988. What would happen if we froze the program, or gave you, say, a 10% increase?

Answer: The Presidential Young Investigators Program is an NSF-wide activity that recognizes and supports the Nation's most promising young science and engineering faculty. Our objective is to encourage these individuals to undertake academic careers, and thus to lead the training of the next generation of highly skilled scientists and engineers needed in both industry and academic institutions. These grants are for five years. The increase of $5 million requested in Engineering is Engineering's share of the 200 new awards planned for NSF in FY 1988. This will raise the number of active PYI's from about 700 to about 900. A freeze in the PYI effort for Engineering, or for any other field or group of fields, would prohibit new awards in those fields in FY 1988. An intermediate increase would affect the number of new awards proportionately.

Question: I note that the cost of the Presidential Young Investigators program will have increased from $50,000 per investigator in 1986 to $57,000 per investigator in 1988. Do you anticipate continued cost growth of this sort over the next few year?

Answer: In the Presidential Young Investigators Program the NSF award carries a base annual grant of $25,000, augmented by up to $37,500 more on a dollar-for-dollar match to funds contributed by industry. The annual cost to NSF will depend on the extent of success in raising matching funds. It is capped, of course, at $62,500, and the budget figure represents our best projected estimate.

Question: How many Presidential Young Investigators are you planning to add to the program over the next 5 years?

Answer: We anticipate a minimum of 200 new awards per year. The first five-year awards were made in 1984, however, so that in each year beyond 1988 a large group of PYI's will terminate annually as new awardees are named.

EQUAL EMPLOYMENT OPPORTUNITY

Question: I have a few questions regarding your record of providing equal employment opportunities for minorities and women. This is an issue I explored every year when I first chaired the Subcommittee and I intend to continue with this line of questioning now that I'm back. In the past, you showed reasonable progress at the lower levels in the area of equal employment opportunity for women and minorities. Your record at the GS-12 and above levels, particularly with minorities, was a different story. How are you doing now? For example, what percentage of jobs at the GS-12 and above level are held by women and how does that compare with last year's percentage?

Answer: The percent of jobs GS-12 and above that have been held by women for the years past two years is as follows:

YEAR	% HELD BY WOMEN	% HELD BY WHITE WOMEN	% HELD BY MINORITY WOMEN
1985	22.8	18.8	4.0
1986	24.7	20.3	4.4

The National Science Foundation's recruitment pool for the majority of professional positions above the GS-12 level is the nationwide science and engineering community. Women comprise no more than approximately 15% of this pool. Minority women comprise approximately 3% of the pool.

Question: What percentage of jobs at the GS-12 and above level are held by minorities and how does that compare with last year's percentage?

Answer: The percent of jobs GS-12 and above that have been held by minorities for the past two years is as follows:

YEAR	% HELD BY MINORITIES	% HELD BY MIN.MEN	% HELD BY MIN. WOMEN
1985	11.4	7.4	4.0
1986	12.5	8.1	4.4

Minorities comprise only 13% of the labor pool of scientists and engineers in the Foundation's disciplines.

Question: What are your goals for fiscal year 1988?

Answer: For the current fiscal year, the Foundation has set goals for hiring members of underrepresented groups and for advancement of members of underutilized groups. We have not set goals for FY 88, because these will be determined based on our employment data as of the end of FY 1987.

The Foundation has a long-range goal to eliminate underrepresentation and underutilization of all groups in all job categories. We are continuing to encourage and to accelerate where possible increased participation of women and minorities in those parts of the work force where they are underrepresented. Overall employment figures for the last two years show representation of minorities and women as follows:

YEAR	MINORITIES #	MINORITIES %	WOMEN #	WOMEN %	TOTAL # OF EMPLOYEES
1985	375	32.3	621	53.4	1,162
1986	406	34.8	636	54.6	1,165

Question: The gaps in median salary between white males and females, both white and minority, used to be substantial at the agency. Six years ago, for example, white males had a median salary

of $45,125 while white females were employed at a median salary of $17,035, and minority females had a median salary of $15,317. Can you tell us what the current salary gap is for both groups currently as compared with white males?

Answer: National Science Foundation records show the following median salaries for the past two years:

	MEDIAN SALARY			
YEAR	WHITE MEN	WHITE WOMEN	MINORITY MEN	MINORITY WOMEN
1985	$63,764	$26,381	$41,358	$19,012
1986	$64,456	$26,893	$38,398	$19,606

The following tables show comparisons of median salary among the same groups for each of the federal employment categories of professional, administrative, technical and clerical:

MEDIAN SALARY FOR PROFESSIONAL POSITIONS

YEAR	WHITE MEN	WHITE WOMEN	MINORITY MEN	MINORITY WOMEN
1985	$66,124	$51,835	$65,066	$57,826
1986	$66,198	$52,263	$66,671	$50,354

MEDIAN SALARY FOR ADMINISTRATIVE POSITIONS

YEAR	WHITE MEN	WHITE WOMEN	MINORITY MEN	MINORITY WOMEN
1985	$57,042	$34,781	$42,611	$29,458
1986	$57,703	$36,889	$41,985	$29,890

MEDIAN SALARY FOR TECHNICAL POSITIONS

YEAR	WHITE MEN	WHITE WOMEN	MINORITY MEN	MINORITY WOMEN
1985	$19,903	$21,982	$21,286	$20,794
1986	$20,200	$21,388	$16,040	$20,794

MEDIAN SALARY FOR CLERICAL POSITIONS

YEAR	WHITE MEN	WHITE WOMEN	MINORITY MEN	MINORITY WOMEN
1985	$13,841	$19,250	$11,458	$16,294
1986	$12,862	$18,710	$12,862	$14,870

SPECIAL PROJECTS IN MATH

Question: Your are requesting a budget of $4.6 million for Computational Mathematics, an increase of 53.3% over a current budget of $3 million. Can you tell us why this budget is going up so

fast and what sort of further budget growth you see over the next 5 years?

Answer: The Computational Mathematics Program represents a new thrust in Mathematical Sciences starting in FY 1987. There are two major efforts in the program. The first emphasizes the formation of interdisciplinary groups developing new computational methods. The second fosters the increased use of computation as a tool in the study of mathematics itself. Within the second effort the program provides a focus for computational activities that could be supported within the other research programs. The rapid increase in the size of the program reflects the need for support as reflected by the proposal pressure. It is expected that the program will continue to increase, but at a slower rate in ensuing years. A budget of $10 Million in FY 1992 is a reasonable target.

Question: You are requesting almost $14 million for special projects. What are these projects, why should they be increased by 42% over last year, and why should they constitute more than double the budget of nearly all the other math programs?

Answer: The Special Projects Program supports activities which cross disciplinary lines within the mathematical sciences. Continuing activities include support for the Mathematical Sciences Research Institute at Berkeley, California, the Institute for Mathematics and Its Applications at the University of Minnesota, the Institute for Advanced Study in Princeton, New Jersey, the Mathematical Sciences Postdoctoral Research Fellowship Program, the Scientific Computing Research Equipment for the Mathematical Sciences Program, and support for conferences and workshops. The large increase requested for FY 1988 is entirely due to the increased involvement of the division in undergraduate education. The increases are for the enhanced Research Experiences for Undergraduate Program, and the new effort in curriculum development aimed at renewal of the calculus course.

ASTRONOMY

Question: The Astronomy subactivity would be increased by the smallest amount within the Mathematical and Physical Sciences activity, 8.8%. What accounts for this modest budget growth?

Answer: The disciplines supported by the Mathematical and Physical Sciences are all experiencing tremendous scientific excitement and pressures as noted in the following reports:

- the 1982 report of the Astronomy Survey Committee of the National Academy of Sciences Astronomy and Astrophysics for the 1980's (Field Report);
- the 1984 report from the National Research Council Renewing U.S. Mathematics: Critical Resources for the Future (David Report);
- the 1985 report of the Board on Chemical Studies and Technology of the National Academy of Sciences/National

Research Council Opportunities in Chemistry (Pimentel Report); and

- o the 1986 report of the Physics Survey Committee of the Board on Physics and Astronomy of the National Research Council Physics Through the 1990's (Brinkman Report).

With this background and recent NSF appropriation history, MPS has attempted to balance the increases requested in the FY 1988 budget against pressing scientific need. The attempt to maintain a balanced national program in the MPS disciplines accounts for the modest, though continuing, budgetary increases in Astronomy.

Question: When the Hubble space telescope goes into operation do you anticipate any reduction in your support for earth-based astronomy?

Answer: We understand that the Hubble Space Telescope (HST) is scheduled for launch in November of 1988. On this schedule initial results will be obtained during FY 1989. The results obtained with the HST will increase, not lessen, the demands on ground-based instruments.

The light-gathering power of existing and planned ground-based telescopes makes them admirably suited for spectroscopic studies of phenomena discovered with HST. The resolving power of instruments such as the Very Large Array in New Mexico and the Very Long Baseline Array (now under construction) will enable us to examine these phenomena at radio wavelengths. Ground-based instruments with sensitivity at millimeter wavelengths (regions of the spectrum where molecules radiate) will provide us with a different, yet essential view of some of these phenomena.

We also expect that phenomena discovered by ground-based instruments will be followed up by observations on the HST.

Question: What economic competitiveness opportunities, if any, do you expect to arise out of this Astronomy program?

Answer: Let me begin my response by quoting directly from the National Academy of Sciences report "Astronomy and Astrophysics for the 1980's":

> "One should recognize the importance of astronomical research as an essential contribution to the scientific and technological vigor of the nation. The entire field has grown explosively during the past two decades, and the research activity of trained astronomers has become a significant component of the U.S. scientific enterprise... Research in astronomy has furthermore often had a surprising impact on technology... The theory of radiative transfer, the development of which was stimulated by the need of astrophysicists to understand the escape of radiation from the outer layers of a star, was later applied by engineers to studies of the escape of neutrons from nuclear reactors. In attempting to explain the source of stellar energy, astrophysicists helped to advance our understanding of thermonuclear fusion; astrophysical studies of plasmas in

space have contributed to the theory of magnetic plasma confinement, which is applied to the control of thermonuclear fusion for practical purposes.

New concepts emerge as astronomy attempts to understand the Universe. Picked up and developed by other scientists, they become part of the knowledge that underlies modern technology."

One can add other examples to those cited above. Techniques developed in radio astronomy for high-resolution radio images are now routinely applied to measure crustal motions of the earth itself. This has become an integral part of the techniques used in earthquake prediction. In another area, millimeter-wavelength astronomy has led to techniques used in the detection of breast cancer.

CHEMISTRY

Question: According to your justifications, the average size of a chemistry grant is expected to grow from about $87,000 in 1986 to $110,000 in 1988 -- an increase of approximately 27%. Can you tell us what is causing this sharp escalation in costs?

Answer: Grant sizes are expected to grow in Chemistry for several reasons:

- Forefront chemical research requires an increased investment in chemical instrumentation. We expect to increase the support for instrumentation on research grants to a level that is about 35% above 1986.

- Instrumentation maintenance and operations costs must be increased in proportion to the increased investment in instrumentation.

- The Chemistry of Life Processes and Materials Chemistry thrusts provide funding for multi-investigator awards at the interface between chemistry and biology, and chemistry and materials research. These multi-investigator awards are generally larger in size and scope. While this mode of support results in fewer awards, the number of faculty supported per dollar awarded is about the same as with the individual investigator awards.

- There is a critical need to strengthen the competitive base of U. S. colleges and universities by increasing the support for student co-workers on research projects. We are projecting an increase of about 100 graduate and postdoctoral students for new projects in areas such as computational chemistry, biomimetic chemistry, and interfacial chemistry.

EFFECTIVENESS AND COMPETITIVENESS

Question: Your FY 88 request would increase your engineering

funding by 25.7%, the largest of all increases with the research and related activities appropriation. You indicate on page NSF-34 of your justification that this engineering increase is intended to "support innovative research in emerging and critical areas with high potential for long-term economic and technological impact". How do you measure economic and technological impact in a systematic manner, and how has the program measured up in the last three years?

Answer: As with all NSF research activities, Engineering primarily supports basic research. This has two implications: (1) that it is essentially long-term in nature; i.e. it may take five or ten years or longer after the completion of the project before the results have a measurable technological impact; and (2) major technological breakthroughs are usually the result of basic research funding from many sources over a period of years. Therefore, it is often impossible to pinpoint one program's precise contribution.

However, there are a number of measurable indicators. For instance, you can measure NSF's impact on engineering education and the training of new engineers and faculty. U.S. industry depends upon the engineering academic community to supply high quality trained engineers. U.S. engineering schools continue to offer the best education and it's no accident that other countries want to send their students to the U.S. for an engineering education.

Over the past three years, NSF has supported over ten thousand engineering graduate students and many thousands of undergraduates. Partly as a result of NSF support, many new courses are now being offered in such areas as manufacturing systems.

Another way to measure success is to look at the major breakthroughs, insights, discoveries and inventions that have occurred in the past and try to identify what role NSF/Engineering has played. A recent study found that NSF supported 31 of 46 significant advances in fundamental engineering research since 1965. For 10 of the 46 advances, NSF was the predominant funding source. NSF's role was greater than that of any other agency or funding source.

It should be pointed out that NSF's impact is not limited to the amount of dollars it provides in support of an area. It often plays a leadership or "catalytic" role. For example, although NSF only funded 11 out of 244 Engineering Research Centers proposals, a significant number of the proposing institutions have received funding from other sources to establish a center.

Although Engineering Research Centers were only initiated in FY 1985, we are identifying specific measures (of both quality and quantity) that will be used to judge success. Data will be gathered from the ERC's annual reports, site visits, and annual submissions of data on progress and activities.

ENGINEERING RESEARCH CENTERS

Question: Your budget provides support for the recently funded earthquake research center at the State University of New York at

Buffalo. I understand that NSF is providing funds for developing a comprehensive new library collection for this center. Is this so?

Answer: The Earthquake Engineering Research Center at SUNY-Buffalo has, as one of its operational activities, an Education and Technology Transfer element. Within this element is an information service program that will provide a wide range of services for users from industry, government and academic institutions. An important part of a research program, especially in earthquake engineering, is the dissemination of research results. The information service program will carry out this task for the Center. The information service program is physically located within the existing engineering library at SUNY-Buffalo and will use much of its existing facilities.

Question: (If the answer is yes) Why are you supporting a new library at Buffalo when you are already supporting the National Information Service for Earthquake Engineering in California?

Answer: The information service program center at SUNY-Buffalo is an important element in the Earthquake Engineering Research Center because of the need to disseminate the center's research results in a timely fashion. It is complementary to the much larger and comprehensive National Information Service for Earthquake Engineering (NISEE) in California, and will serve as a focal point for the dissemination of earthquake engineering research results in the Eastern United States.

Question: What measures do you use to evaluate the appropriateness of continued funding for engineering research centers?

Answer: The ERCs operate under a five-year cooperative agreement with NSF. Annual refunding is determined on the basis of performance and growth potential. Each year the ERC program reviews the progress and plans of each center. Information gained during this review is used to determine annual funding levels for each center. Currently, the most dominant factor in that decision, given sufficient progress in meeting the goals of the center, is the level of industrial support.

The program is committed to a review during the third year of operation of a center to determine whether the ERC will continue to operate under a new five-year award (beginning in its fourth year) or whether NSF will provide decreased funding to phase out the Center at the end of the fifth year. Examples of the criteria include:

- ERC has successfully met its proposed goals and the goals of the program.

- It is a coherent center, with a vision, and a strategic plan to carry out that vision.

- o There is high quality, cutting edge research in thrust areas relevant to technological advancement and international competitiveness.

- o There is a focused and integrated set of projects designed to achieve a significant technological advance.

- o The structure of the center encourages cross-disciplinary research.

- o The research is integrated into the educational/curriculum development activities and undergraduates as well as graduate students are involved in research projects.

- o There is an open, interactive dialogue with industry and a sufficient and expanding base of industrial support.

- o Effective leadership and management has been demonstrated.

- o The university climate has been conducive to the success of an ERC.

The specific measures and data used to assess the degree of success in achieving these criteria are gathered from the ERC's annual reports, site visits, and annual submissions of data on progress and activities.

Question: How many engineering research centers do you eventually plan to fund, and what will be the annual cost of supporting all the centers?

Answer: The National Academy of Engineering (NAE) recommendation, used in developing the ERC program, was based on the expectation that about 25 centers would be required to significantly impact engineering education and practice.

The NAE study also recommended that the 25 centers be supported at a level of about $100 million annually. This still represents our current thinking. Based upon experience to date, we can expect the ERC's to attract at least an equal amount of funds from non-NSF sources.

CENTERS -- GEOGRAPHY

Question: You are requesting $1 million in fiscal year 1988 for the establishment of a new geographic information analysis center. Can you tell us how much the Foundation plans to spend in support of this center over the next 5 years?

Answer: Social and Economic Science subactivity plans to allocate approximately $5.3M over the next five years for such a center.

Question: Are you committed to fully supporting this center if the Congress does not double the NSF budget over the next 5 years?

Answer: The Geography and Regional Science Program is in the process of developing a program announcement soliciting proposals for establishment of the center. If the project is begun in FY 88, BBS will continue its commitment in support of this center for the full five years.

CENTERS -- DECISION AND RISK ASSESSMENT

Question: You are requesting $36 million in fiscal year 1988 for social and economic sciences, a 9.7% increase. This includes $500,000 for the establishment of 2 or 3 new research centers focused on Decision and Risk Assessment sciences. Can you tell us how much the Foundation plans to spend in support of these centers in FY 88, as well as over the next 5 years?

Answer: We have just completed the program announcement for this new activity and are in the process of soliciting proposals for "multidisciplinary research programs in decision and risk assessment sciences." Up to two such programs of research will be initiated in each of FY 87 and FY 88 with an initial duration of three years each. Funding for each project will range between $300,000 and $400,000 per year, totalling approximately $800,000 in FY 87 and $1.3 million in FY 88. If the program proves successful, five year funding from FY 88 through FY 92 should total approximately $6.5 million. For the record, the FY 88 requested increase for Social and Economic Sciences actually is 13.3%, since the FY 1987 Current Plan level includes a carryover from FY 86 of $1.05 million.

Question: Are you committed to fully supporting these centers if the Congress does not double the NSF budget over the next 5 years?

Answer: Yes. The number of new centers initiated in following years will depend on appropriations, but centers begun in FY 1988 will receive NSF commitment for full funding, with the standard proviso on availability of funds.

CENTERS - BIOSCIENCES

Question: According to your justifications you plan to establish three large biological research centers and 10 smaller biological facilities centers at a cost of $12.3 million in fiscal year 1988. Can you tell us how much the Foundation plans to spend in support of these centers over the next 5 years?

Answer: Awards for Biological Facilities Centers are one-time awards for one year each; the Biological Research Center awards are envisioned as 3-year continuing grants. The 10 smaller centers discussed in the FY 88 budget will be fully funded in that fiscal year while we intend to support the large centers on an incremental basis. We are planning to continue the program and support additional centers for a total of approximately $27.3 million for large centers and $25.0 million for small centers over the next five years.

Question: Are you committed to fully supporting these centers if the Congress does not double the NSF budget over the next 5 years?

Answer: The amount available for support of these centers will depend in part on the appropriation each fiscal year. However, we view the Biological Facilities Centers as particularly important to the health of the biological sciences and will continue to support that effort to the extent the budget allows.

CENTERS -- PSYCHOBIOLOGY

Question: You also plan to establish a small number of multidisciplinary research and resource centers in neurobiology next year. How many centers will you initiate and how much will they cost in fiscal year 1988?

Answer: One to three will be established in FY 88 for approximately $1.3 million.

Question: Can you tell us how much the Foundation plans to spend in support of these centers over the next 5 years?

Answer: Approximately $6.5 million, assuming appropriated resources are available.

Question: Are you committed to fully supporting these centers if the Congress does not double the NSF budget over the next 5 years?

Answer: Yes, but the number of new centers initiated beyond FY 1988 will depend on the amount available to support these centers will depend on the each fiscal year.

POLITICAL SCIENCE

Question: You are requesting an increase of 20.2% in your Political Science program. How can you justify an increase of this magnitude when we are trying to hold down federal spending?

Answer: The increase of 20.2% in the Political Science Program budget is intended to provide partial coverage of the large election-year increase in the National Election Studies grant to the University of Michigan. This project, a major national data collection effort, has a budget of more than $2.2 million in FY 88 (more than twice the size of the FY 87 budget) because of the presidential election that will take place in 1988. The five-year award, which was first funded in FY 84, supports extensive survey research on the attitudes and behavior of voters and nonvoters in the United States before, during, and immediately after national election campaigns. The National Election Studies, which have been conducted since 1932, constitute the major data resource for research by political scientists, sociologists, economists, and others on electoral behavior. Data from these surveys, disseminated to a broad, interdisciplinary community of scholars through the Inter-University Consortium for Political and Social Research, have been

responsible for major advances in theory and research on voting and elections in the United States.

Question: One of next year's initiatives will be a large scale data collection effort in international politics. Can you tell us what this involves?

Answer: The primary purpose of the Data Development for International Research (DDIR) project is to assemble and maintain a series of data bases to be used by scholars interested in international relations. This effort is a part of a larger, ongoing NSF effort to ensure the availability of high quality data resources for social science research and thereby strengthen the infrastructure of social science research. DDIR databases pertain to such topics as civil wars, national political structures, interstate relationships, international conflicts and crises, and international interventions. Besides the more obvious payoffs for research and theoretical purposes, the DDIR activities will have the secondary benefits of reducing the need for unnecessary and expensive duplication of uncoordinated data collection and maintenance efforts.

HISTORY AND PHILOSOPHY OF SCIENCE

Question: You have requested $1,960,000 for History and Philosophy of Science Research, an increase of 9.8%. What quantitative measures did you use to document the need for this increase, in the context of economic competitiveness, personnel enhancement and basic disciplinary research?

Answer: Part of the requested $170,000 increase for this program will be used to support additional projects on the history of 20th century science and technology, an important and rapidly growing area of study. As all societies and their economies have become more technologically based, it has become increasingly important to understand both the complex factors that have led to this situation and those factors that lead to success in technological development.

The additional funds also will partially support a new postdoctoral program in the history and philosophy of science designed to help offset a projected shortage in historians of science and technology expected in the early 1990's. These fellowships will provide research opportunities for young Ph.D.'s in history and philosophy of science and provide history training for scientists who have had no such experience.

Question: How would the program be affected if this element was held to the 1987 level?

Answer: Holding the budget for this program level would seriously impair the Foundation's ability to support badly needed studies of the development of 20th century science and technology, as well as limit the implementation of the history and philosophy of science postdoctoral program.

OCEAN SCIENCES -- MASS SPECTROMETER CENTER

Question: You request $43.86 million for the Oceanographic Centers and Facilities program, a $6.69 million (18%) increase over the current year. Included in this increase is $2.9 million (43% of the increase) for a new center which would house an accelerator mass spectrometer. As there are other spectrometers available, I wonder if you have documented their full utilization, thus establishing the clear need for additional instrumentation. To put it another way, how much excess analytical capacity exist within the accelerator mass spectrometer community in the U. S.?

Answer: The need for an oceanographic accelerator mass spectrometer (AMS) facility is dictated by the large number of water samples which will be collected and analyzed for global projects, such as the World Ocean Circulation Experiment. Several thousand samples will need to be analyzed each year to determine ocean water movements and their age. At present, there is only one dedicated AMS facility in the U.S. (University of Arizona), and its use is over-subscribed. Its availability for oceanographic research is thus very limited. There are other accelerators in DOE labs and academic institutions which possibly could be converted to use for the oceanographic AMS Center. Our plans are to proceed with an RFP which would encourage existing facilities to be modified and not duplicate existing hardware or buildings.

Question: Can you tell us how much the Foundation plans to spend in support of this center over the next 5 years?

Answer: Approximately $15 million.

Question: Are you committed to fully supporting this center if the Congress does not double the NSF budget over the next 5 years?

Answer: Yes. First year support for this center will be provided from the requested increase in the FY 1988 Global Geosciences Initiative. We plan to offer a solicitation for proposals if the Congress provides those funds. While support in future years would depend on the center's progress and the availability of funds, NSF is committed to supporting this important resource to the fullest extent possible.

ATMOSPHERIC SCIENCES -- NATIONAL CENTER

Question: You requested $47.1 million to support the National Center for Atmospheric Research (NCAR), a 14.3% increase. How would the NCAR program be affected if we followed last year's precedent and provided an increase of only $250,000?

Answer: The overall effect on the NCAR program of a reduction of $5.63 million from the proposed budget level of $47.1 million would have a severe negative impact on NCAR initiatives in Global Geosciences, storm-scale meteorology, and the infrastructure needs of the atmospheric sciences. Specific impacts would include:

- A severe reduction in the NCAR contribution to the national

storm-scale meteorology programs and a sharp decrease in the planned instrumentation and facilities development in the area of radar development and other airborne and ground-based instrumentation. This will impair NCAR's ability to mount the major storm-scale meteorology field experiments that are presently planned.

- The Global Tropospheric Chemistry Program will not be augmented, resulting in the reduction of field and laboratory studies planned for FY88 and of development of techniques for measurement of tropospheric gases of importance to atmospheric warming.

- A limited implementation of a distributed computing environment and enhanced network and communications facilities. This will delay utilizing the full potential of the enhanced computing facilities by NCAR and university scientists.

- A reduction in NCAR staff of 25 to 30 full-time positions.

EARTH SCIENCES

Question: You have requested $63.35 million to support Earth Sciences research, a 27.1% increase. This includes an 80.4% increase ($8.49 million) for Continental Lithosphere projects. In 1987, you took 72% of the Congressional cut in this subactivity out of the Continental Lithosphere program. Does the increase in that program this year constitute a catch-up from last year?

Answer: In 1987, faced with a cut of $5.09 million from the request, the Foundation decided to stretch out and slow down the larger projects in the Continental Lithosphere Program rather than to make a large decrease in the number of individual research awards. For example, the COCORP seismic reflection profiling project was cut by 14 percent, and the Cajon Pass Scientific Drilling Project was required to incorporate a "furlough" of several months into its drilling operations plan. FY 1988 is a critical year for several of the Continental Lithosphere Program projects. Completion of the Cajon Pass drillhole cannot be delayed further without seriously impeding progress and substantially increasing costs. In this sense the FY 1988 request does represent a "catch-up" from last year, although a significant increase would have been requested even without the FY 1987 budget changes, because plans for acquiring new seismographic instruments require contractual arrangements to be made with industry; and funding is needed for the handling, distribution, and analysis of data now being collected.

Question If Earth Sciences was increased only 6.5%, as it was last year, would you take the bulk of the cut from the Lithosphere program again?

Answer: A decrease from the request to this level could not be accommodated within the Continental Lithosphere Program; much of the impact would fall on individual research grant programs with a consequent decrease in the number of awards.

Question: I note that your estimated average Earth Sciences award in fiscal year 1988 would be $84,500, a 16% increase over your 1987 estimate of $72,800. Why do you estimate that the average award will

increase so significantly, especially in light of the fact that it has remained rather constant for the past several years?

Answer: Much of the requested increase for FY 1988 is for the Continental Lithosphere Program where award sizes are much larger than for individual investigator awards. The average award size for individual investigator awards is expected to remain constant or increase slightly.

Question: I note that the duration of an average Earth Sciences grant is about 1.1 years compared to the estimate in last year's hearing record of 1.5 years, a 27% decrease. Coupled with the increase in the average award size, these figures indicate that NSF is spending a great deal more on Earth Science research projects than in the past. Can you explain this?

Answer: The figure of 1.1 years given in the FY 1988 budget justification is an error. The average duration is expected to remain about 1.5 years.

It is true that the Foundation is spending a larger portion of its overall budget on Earth Sciences than in the past. This is a consequence of three factors: 1) rejuvenation of the field as a result of plate tectonic theory and its implications, 2) the availability of powerful new (and expensive) tools capable of probing the earth, and 3) the practical importance of earth sciences research in such areas as energy and mineral resources, earthquake and volcanic hazards, and water supplies.

ICEBREAKING RESEARCH SHIP

Question: You are requesting $143 million for the Antarctic program including $104.6 million for Operations Support, an increase of 23.8% over the current budget. You are proposing to spend $13 million for the outfitting and initial year lease of an icebreaking research ship. How much will it cost you to lease and operate this ship over the next 5 years?

Answer: We estimate $10 million per year in FY 1987 dollars.

Question: Did you consider the purchase rather than lease of a vessel and the consolidation of activities in one all-purpose ship?

Answer: Based on lease versus purchase calculations carried out according to Government Circular A-94, it is more economical to lease the vessel.

With respect to consolidation of activities into one multi-purpose ship, it is important to recall that we have been using several ships, particularly in the austral summer. Two Coast Guard icebreakers have been used: GLACIER for Palmer Station resupply and research; a Polar Class ship for channel breaking at McMurdo Station and resupply at Palmer; and POLAR DUKE, a very efficient and effective ship, that cannot operate in more than light ice conditions.

Two ships, each with different levels of capability and cost,

provide the optimum potential for both research and logistics. A single, larger and more powerful ship would operate far below its capacity much of the time and far less work could be done. A Polar Class icebreaker will continue to be needed to break out the McMurdo channel, a quarter of the way around the Antarctic continent for Palmer Station.

COMPUTER AND COMPUTATION THEORY

Question: You are requesting $43.35 million for Computer and Computation Research, an increase of 22.3% over the current year. This total request includes $2.7 million to expand the Institutional Infrastructure program by 18.9%, much of this to go toward a new parallel processing research center and to increase the number of centers of excellence. What existing centers now study parallel processing, and what would we lose if this center were deferred, or its responsibilities were placed in existing centers of excellence?

Answer: Many centers now study parallel processing using one or another of the several different parallel architecture machines available on the market. None has a broad and representative sample of the different architectures to carry out comparative studies of the utility of different architectures for different classes of problems. None can study the software issues of a representative sample of machines to learn what characteristics the machines have in common and what the essential differences are which must be reflected in software that is specific for a given machine and hence not easily portable to other architectures. These comparative questions are vital if we are to use parallel architectures to greatest advantage and retain the competitive edge the U.S. now enjoys over the rest of the world in this technology.

Question: How many centers of excellence are there, and what quantitative measure did you use to arrive at the need for more?

Answer: NSF now supports 23 centers of excellence through its Institutional Infrastructure program and has observed that this support has been very influential in increasing the number of graduate students studying for advanced degrees in computer science and computer engineering. The institutions which have received these grants have rapidly increased their graduate enrollments, but they are becoming saturated. More centers of excellence are needed if the country's supply of highly trained computer specialists is to increase. Studies performed by the Computer Research Board, the NSF Advisory Committee for Computer and Computation Research, and others have shown that the country has need for at least 600 Ph.D. graduates per year in the computer fields. The present rate of production is approximately 300. NSF's request to increase the number of centers is in response to this need and is the most influential single step that can be taken to achieve the goal.

Question: How many more are needed, based on quantitative measures?

Answer: Studies made by the Advisory Committee for Computer and Computation Research indicate that as many as 15 to 20 more centers may be needed to reach the research and graduate education goals of 600 Ph.D.'s per year. It is expected that new centers started after this time will be more modest in scale than most of the ones which

have already been established and will be placed at institutions that have strong potential for development but limited breadth of research and graduate educational strength at this time. These institutions have limited graduate enrollments in computer science and computer engineering now and substantial prospects for growth if support is available.

Question: What is the potential for large-scale industrial support of the parallel processing research center?

Answer: Based on established patterns of industrial support, we expect to get substantial contributions to the equipment costs but at most modest contributions to the maintenance, staff, and other operating costs of the center. We hope that industrial researchers will participate in the research activities of the center in collaboration with academic researchers and expect them to pay their own costs for research.

INTELLIGENT SYSTEMS

Question: You are requesting $19,870,000 for Information, Robotics, and Intelligent Systems in the coming fiscal year. I was interested to note that despite the fact that the Congress cut your total budget last year, you actually increased funding for Robotics and Machine Intelligence by about $630,000 above the amount proposed -- an increase of 13.4% above the budget request. What happened between the time you made your initial request and the time you implemented your final program to cause this change in direction?

Answer: Between the time we made our initial request and the time we implemented our final program, we had the CISE reorganization. As part of the reorganization, the Robotics and Machine Intelligence program (formerly the Intelligent Systems program) took on additional program activities, including the Robotics projects that were funded out of the Computer Engineering program in the Engineering Directorate. The 13.4% budget increase you noted really reflects the transfer of additional responsibility to that program, rather than an actual increase or a major change of direction.

CENTERS -- EXPERIMENTAL AUTOMATED SYSTEMS

Question: You have requested about $3 million in Fiscal Year 1988 for the establishment of several small centers of excellence in Robotics. How many of these centers do you plan to initiate in 1988 and how much will they cost?

Answer: We plan to establish 3 or 4 such Centers during 1988, with additional centers in later years, if the funds requested are approved. The cost of these centers, which will not just focus on robotics but also on several other areas of automated, intelligent systems, will depend on the nature and extent of the research. They will average up to $1M per year for a period of 3-5 years.

Question: Can you tell us how much the Foundation plans to spend in support of these centers over the next five years?

Answer: In these areas, the Foundation plans to build up the

Center program gradually but steadily. We will begin with 3 or 4 Centers in 1988 at the average cost of up to $1M each. We plan to add about 2 or 3 centers each year in the next few years and reach a steady state of about 10 centers in five years.

Question: Are you committed to fully supporting these centers if the Congress does not double the NSF budget over the next five years?

Answer: We are committed to building up and supporting these centers because of the need to respond to the changing nature of the research represented in these areas. Much of the research in automated systems - robotics, intelligent interfaces and so on - requires an interdisciplinary team, drawing on the expertise and resources from several fields over a sustained period of time in order to succeed. These centers will also be able to focus on goal-oriented research and can be better linked to industry. Naturally, if the Congress does not double the NSF budget in five years, we will have to do it on a much smaller scale and perhaps by shifting our funding strategies from individual projects to allow larger research groups to compete for support.

CENTERS

Question: You are requesting $143 million for computer and information science and engineering next year, an increase of 22.7% above the current budget.

A major component of this budget is the $48.2 million you plan to devote to advanced scientific computing with primary emphasis on the supercomputer centers.

Supercomputer centers would receive an 18.6% increase next year and yet I note that you will have terminated support for the six interim centers and will maintain the national centers at the present level. If this is the case, why do you need an increase of $7,310,000 for the centers?

Answer: It had always been planned to phase out the Phase I centers when the national centers were operational. The increase of $7.31M for the centers program is needed because equipment upgrades are scheduled in FY88 and one center's budget had relatively low figures for FY85-FY87 period, but had been scheduled for large increases for FY88 and beyond to make up for the lower cost in the early years.

Question: Your justification does not allocate supercomputer center funding to each of the five centers in 1988. Was that an oversight or don't you know how these funds will be allocated?

Answer: The allocation of supercomputer center funding to the five centers has not yet been made because this will be done in negotiations that are to follow their submission of FY88 program plans and budget requests in June of 1987. This is in line with standard NSF policies of negotiating the specific budgets of continuing awards based on progress and needs.

Question: Your budget justification indicates that one of your

supercomputer centers uses an IBM 3090-40. Can this piece of equipment really be considered a supercomputer and, if not, why have you created a center around it?

Answer: No generally accepted definition of a supercomputer exists. However supercomputers provide both scalar and vector processing capabilities and in some cases multiple processors. Machines generally agreed to be supercomputers are the CRAY-1, CRAY XMP and CRAY-2 systems, the CYBER 205, the ETA 10, the Fujitsu VP, the Hitachi S810 and NEC SX series machines. These have peak performances from 140 MFLOPs for a CRAY 1A to 1.4 GFLOPS for a Fujitsu VP400. The IBM 3090 400 with vector capability has a peak performance of 432 MFLOPs.

There are other aspects of performance other than their peak computational rate. Foremost is the ability of the computer to sustain reasonable scalar rates. Other aspects include the amount and bandwidths of the primary memory available, the performance and amount of extended electronic or "solid state disks," and the performance and amounts of fixed media disk storage. Also the amount and quality of software support available to permit the scientific user to concentrate the hardware resources on a given problem. Each of the systems outlined above has strengths and weaknesses in these performance areas and none provides a completely acceptable solution to all the performance criteria listed. The IBM 3090 400 with vector capability provides a reasonable balance of the desired features and although its peak performance is less than many of those listed, it should be classified with them. Furthermore, upgrades to the IBM 3090 400 increase both the capability and capacity of this series of machines.

ADVANCED SCIENTIFIC COMPUTING

Question: In funding the Supercomputer Centers, you have made a commitment to fund only the most advanced activities. Where does the researcher go who was previously using the Phase I supercomputers, and who does not need even more advanced capabilities?

Answer: Most of the Phase I users have migrated to similar facilities. Currently the equipment in the Phase II centers has not been upgraded to exceed the capabilities in the Phase I centers. The first such installation will be the ETA-10 machine at JVNC later this year. Others will occur in 1988 and 1989.

At this time researchers who do not immediately need more advanced facilities will find that their turnaround or service will be better. Such advanced facilities will better support the evolutionary growth and development of the researcher's models.

Question: What is the utilization rate of the supercomputer centers? Do they provide enough capacity?

Answer: The utilization rate varies at the different centers and depends both on the length of time that service has been provided and on the time since the last equipment upgrade. The centers began to provide service during CY1986. Growth in utilization was rapid. Soon they will be unable to provide the necessary resources without the upgrades planned for FY88-FY90.

The John von Neumann Center has run at a 500 hr/month rate from October 1986 through February 1987. This represents a fully loaded CY205. A second CY205 was installed in mid February '87. The time allocated exceeds the capacity of both systems.

SDSC (San Diego) has recently been operating at the expected 30,000hr/yr rate(100%). Allocations are closely matched to the ability to produce cycles and are therefore kept below demand.

CNSF (Cornell) upgraded from an IBM 3084 to an IBM 3090 400 in October 1986 and is now operating at 87% of capacity. There is an outstanding allocation to operate for six months at this level.

NCSA (U. of Illinois) upgraded from a CRAY XMP-24 to a CRAY XMP-48 in October 1986. It currently is at 88% of saturation.

PSC (Pittsburgh) began operation in June 1986 and is at 66% of saturation. The centers began to provide service during CY1986.

Question: In looking at the quantitative data on your Advanced Scientific Computing Program, I note that you made only 18 awards in 1986 yet obligated a total of $36.5 million for an average grant award of over $2 million. Last years's justifications indicated that you planned to make 60 awards in 1986 and that the average grant award would be for $754,000.

Can you tell us why you only made one-third as many awards as initially planned in 1986 and why the average award was about three times as large as your original estimate?

Answer: The Quantitative Data Table estimates for the number of awards for the Advanced Scientific Computing subactivity presented in the FY 1987 Budget Request are not directly comparable to the FY 1986 Actuals presented in the FY 1988 Budget Request because of the formation and reorganization of the CISE Directorate. Some activity carried on in ASC before reorganization has been transferred into the new Division of Networking and Communications Research and Infrastructure.

In addition, there is an error in the FY 1986 Actuals reported for Advanced Scientific Computing subactivity; 50, not 18, awards were made. Specifically, 21 awards were made in the Supercomputer Centers program element, and 29 were made in the New Technologies program element. The overall average award size is $730,000, which is approximately the same as that previously estimated.

MICROELECTRONICS -- PROTOTYPING

Question: You are requesting $18,214,000 for Microelectronic Information Processing Systems next year. You plan to dedicate $700,000 toward a research center on rapid prototyping of experimental systems, as well as continue joint funding of the NSF/DARPA facility at a level of $500,000. What is the utilization rate of the DARPA facility? Is it so great as to compel duplication of the facility through the proposed new center?

Answer: In accordance with the NSF/DARPA Agreement, in FY 88 NSF

will contribute $923,236 to allow qualifying U.S. universities to use DARPA's fast-turnaround VLSI Implementation Service. The NSF/DARPA Agreement provides a range of services which will enable U.S. university researchers and educators to have microelectronic chips fabricated which implement their own designs. Over 91% of the NSF payment in FY 88 goes directly for fabrication costs for silicon chips. The proposed NSF research center for rapid prototyping, on the other hand, is a research activity focused on providing system level design tools, environments and infrastructure needed to make rapid prototyping of complete experimental systems. The research conducted by the center should lead to new types of services to be incorporated into the future Implementation Service.

The utilization rate of the present NSF/DARPA Service is essentially 100%. That is, the Fabrication runs purchased by NSF and DARPA are fully utilized.

The new research center does not duplicate the present NSF/DARPA Service. The center will encourage research on new methodologies, tools and environments needed for rapid prototyping of complete systems. This research will lead to a better understanding of the issues involved in rapid prototyping of experimental systems.

The $500,000 referred to in the question is what is projected to be additionally needed if the Implementation Service is to be opened up to class projects by undergraduate VLSI designers. The Implementation Service today is essentially limited to graduate level projects.

Question: Prototyping is an enterprise which has particularly strong potential industrial applications. How much support for the new center should we expect from the private sector?

Answer: Rapid prototyping of experimental systems is as much a problem in industry as in universities. Little systematic knowledge or methodologies exist in this area. Thus, we expect considerable interest and support from the private sector. At the joint NSF/DARPA workshop on Rapid Prototyping of Experimental Systems held in December 1986, strong industry support was expressed for work in this area. Initially, we expect this support to take the form of university-industry collaborative projects with participation of industrial researchers in the center research activities. As work in the center progresses we would expect industrial monetary contributions to occur.

Question: How much do you plan to spend on the new center in 1988?

Answer: We contemplate spending about $700,000.00 in FY88.

Question: How much will it cost over the next 5 years?

Answer: This will depend on the nature of the center. For example, whether it is a unitary or distributed center composed of a number of cooperating sites. These issues are being examined through workshops, our Advisory Committee and joint discussions and collaboration with DARPA. An estimate now would be about a million dollars per year for the four years beyond FY88.

Question: Are you committed to fully supporting this center if the Congress does not double the NSF budget over the next 5 years?

Answer: We are committed to supporting the center. The level will depend on the research needs, research progress, acceptance of the center in the research community and the NSF budget.

SCIENCE, TECHNOLOGY AND INTERNATIONAL AFFAIRS

Question: You are requesting almost $12 million for international cooperative scientific activities, an increase of 16.4% over the current budget. Included in this program is support for the International Institute of Applied Systems Analysis. In 1986 and 1987, you had planned to support this institute with $500,000 per year. What is the status of this program?

Answer: The Administration believes that it is not wise to fund projects at IIASA at the present time. We believe that our security interests could be better served through bilateral programs, where we have more direct control over Soviet and Eastern bloc access to scientific equipment and Western data bases. Moreover, we believe that our bilateral political relationships are better served through direct, rather than multilateral, scientific cooperation.

We will be examining the possibility of redirecting the 1986 funding of $500,000 to bilateral programs with the Soviet Union and the Eastern Bloc.

This decision was arrived at after very careful research and review within the Administration. It applies only to the funds identified in the FY 1986 budget. We are prepared to revisit this issue in connection with the FY 1987 budget if new circumstances warrant such a review.

TEACHER ENHANCEMENT

Question: You propose a Teacher Preparation and Enhancement Program appropriation of $36 million, an 18% increase over the current year. My general sense is that teacher improvement will yield greater gains than curriculum development, and as such, I tend to look favorably on teacher enhancement program. However, I base this comment on my own experiences. Do you have any data which indicate the relative importance of teacher competence versus curriculum adequacy data which would support your 18% increase request?

Answer: The increase requested in Teacher Preparation and Enhancement for FY 1988 is for two new programs: (1) $3.0 million is requested to begin a Faculty Enhancement activity, which would provide support for model content-oriented activities for teachers of undergraduates (as the present Teacher Enhancement activity do for precollege teachers of science and mathematics); and, (2) $2.5 million is requested to begin a Science Career Access Program designed in increase the participation in science, mathematics, and engineering of school and college students in underrepresented groups (women, minorities, and the physically disabled). The latter program would support, for example, the establishment of resource centers at institutions with significant minority enrollment. These centers would work with both college and precollege students.

The Foundation believes that a balanced program of efforts to raise the quality and increase the effectiveness of science and mathematics education -- at every level -- must include both teacher improvement and curriculum development programming.

RESOURCE CENTERS

Question: On page NSF-182 you describe the start of a number of educational resource centers for which you request $2.5 million in fiscal 1988. How much will you spend on these centers over the next 5 Years?

Answer: $2.5 million is requested to begin a Science Career Access activity designed in increase the participation in science, mathematics, and engineering of school and college students in under-represented groups.

In the steady state we anticipate perhaps five centers, each operating at a level of activity that would require $1 million per year. Thus at maturity the center program in education would cost $5 million per year. These centers will be established gradually; the expenditure over the next five years will likely be about $21 million.

Question: Are you committed to fully supporting these centers if the Congress does not double the NSF budget over the next 5 years?

Answer: If Congress does not double the NSF budget over the next five years the growth of centers would be more gradual; however, we are committed to testing the center concept in several education program areas.

EDUCATION LEVELS

Question: Your overall request for Science and Engineering Education programs is $115 million, an increase of 16.1% or $15.95 million. Over half of this increase, $8.7 million, is for Research Career Development. Most of this $8.7 million goes to graduate students. There has been a great deal of talk lately about the importance of strengthening science education at the pre-graduate school level. Doesn't the budget you are proposing suggest that you are more concerned with graduate education?

Answer: The NSF is concerned with education at all levels. Almost 60% ($67.7 million) of the FY 1988 request in Science and Engineering Education is for precollege education. About 13% ($15.0 million) is focused at the undergraduate level, and 28% (32.3 million) at the graduate level. The $8.7 million increase for Research Career Development includes $3.7 million for a new precollege activity for high school students and $5.0 million for graduate fellowships.

Overall, the $16 million increase includes more than $6 million for precollege activities.

Question: On page NSF-192, you indicate that part of the

justification for the $8.7 million increase in Research Career Development is that you will be funding 200 more 3-year Graduate Fellowship awards. That accounts for only a portion of the $8.7 million increase. What accounts for the rest?

Answer: The $8.7 Million increase for Research Career Development is divided as follows: $5.0 Million for 200 more 3-year Graduate Fellowships, and $3.7 million for a new program for high ability secondary school students. The FY 1988 grants in this new program will involve at least 1,500 junior and senior high school students in participation in research and other advanced projects with the objective of enhancing their interest in science and strengthening their confidence in their career selection decisions.

EDUCATION -- ASSESSMENT

Question: You are proposing initiating a $7.5 million program to systematically study the quality and impact of NSF educational activities. Will this program develop objective measure related to your goals of economic competitiveness, personnel enhancement and enhanced discipline research efforts?

Answer: The $7.5 million for Research, Studies, and Program Assessment in the FY 1988 Budget Request includes $4.3 million for research in teaching and learning and $3.2 million for studies and analysis. Approximately $1.0 million will be used to expand program evaluation efforts. This subactivity supports projects designed to provide data and analyses to assist the Foundation in developing and evaluating its education programs. It is not a new initiative, but a regrouping of related activities.

U.S. ANTARCTIC PROGRAM

Question: What is the Division of Polar Programs (DPP) doing to evaluate waste disposal practices carried out by the US Antarctic Research Program in Antarctica, and to monitor emissions, effluents, and the effects of such waste disposal?

Answer: Various reports and studies have been conducted to evaluate waste disposal practices and to make recommendations for improvements. Among the reports are:

"Long Range Development Plan, Volume II, McMurdo Station", Holmes & Narver, Inc., April 20, 1979.

U.S. Antarctic Program Final Environmental Impact Statement, June 1980.

"Report on the McMurdo Station Water Quality Study", Raytheon Service Company, September 30, 1983.

"The McMurdo Station Sanitary Landfill Evaluation and Recommendations Report", ITT/Antarctic Services, Inc., October 1984.

More recently, during the 1986/87 operating season, the Arthur D. Little Company completed a preliminary investigation involving environmental health and safety issues. The report resulting from that study is due in September 1987.

There is no active program to monitor emissions into the atmosphere which are due to vehicle exhaust, the power plant stack, heating plants, and open air combustion. They were addressed in the Environmental Impact Statement and the Sanitary Landfill Report. The Environmental Impact Statement states that: "the quantities of the compounds that will be added to the air are quite small..."; and "This impact ... is very localized."

A piped sewage collection system, which flushes waste to the sea, was constructed at the McMurdo Station in the mid 1970s. It has been expanded since then, and will soon serve all of the living quarters there. A new and improved sewage outfall is under construction. The Raytheon water quality study report, referenced above, recommended against chlorination of the sewage effluent, noted the substantial seawater dilutions, and pointed out that the total sewage waste is far below what is generated by local aquatic animals. Although effluents are not being actively monitored, DPP has requested that the support contractor, ITT/Antarctic Services Inc., include the conceptual design of a primary treatment plant in the FY 1988 Program Plan. Non-human waste, such as chemical and oil wastes, are separated or neutralized at their source, and are not disposed of in the sanitary waste system.

Current solid waste disposal consists of burying the waste in ice holes (South Pole and Siple Stations) or removal to deep water or South America for disposal after combustibles are burned (Palmer Station). At McMurdo, waste materials are disposed of in a landfill in accordance with environmentally acceptable procedures. This includes periodic controlled burning of solid waste to reduce the large volume of combustible materials, followed by covering with fill material. Scrap metals, batteries, waste fuel and oils, and tires are all palletized for retrograde. The program is in full compliance with the Code of Conduct for Antarctic Expeditions and Station Activities and is in concurrence with the spirit of generally sound environmental practices.

Question: What is DPP doing to monitor change in the Antarctic environment brought about by the Antarctic Research Program, as called for in the programmatic environmental impact statement on the program?

Answer: In accordance with the Antarctic Program Environmental Impact Statement, DPP's policy is to support research projects to assess impacts of the Antarctic Research Program on the antarctic ecosystem. Studies which have been completed include a survey of the impact of the use of radioisotopes at field camps and the McMurdo Station, and the effect of the use of explosives on hearing loss in Weddell seals. Additional proposals which address this issue, will be considered for funding under NSF's normal review procedure.

Question: What amount of funding would be required for a study to evaluate current waste disposal practices and recommend improvements?

Answer: This depends on the extent of such a study. For example, a study to update and expand the previous studies (referenced above) is estimated to cost less than $100,000, whereas to repeat the previous studies and expand the work to include costing out recommendations, could cost upwards of $250,000.

Question: Was the consultant hired by NSF to review USARP practices with respect to hazardous materials, safety, and health able to successfully complete his assessment of all program facilities? Did any problems arise between the responsible authorities of the NSF and the Department of Defense support operation that inhibited this review?

Answer: The consultant, Arthur D. Little Company, was hired by NSF to review the US Antarctic Program practices, not just those of the US Antarctic Research Program. The Naval Support Force Antarctica (NSFA) maintains that it operates under DoD rules and regulations, and that all inspections are performed as necessary; NSFA did not allow the consultant to enter its spaces. As a result, the consultant's report will include the US Antarctic Research Program (USARP) and the portion of the support operation performed by the support contractor, but not the portion performed by the Naval Support Force.

Question: Do you consider it appropriate for the DPP to review its policies prohibiting funding for technical monitoring activities in light of the growing need for baseline and time-series monitoring data in order to be able to detect and predict potentially adverse change in the Antarctic environment as human activities increase in Antarctica and the Southern Ocean?

Answer: There are no policy prohibitions on these activities. The research program includes environmental studies of this nature, for example, carbon dioxide and ozone monitoring, and surface and upper air meteorological observations. Monitoring projects will continue to be given full consideration in completion with other basic research proposals. The Antarctic Program undertakes environmental studies, (such as those by Raytheon, ITT, Arthur D. Little), which regularly consider human activity impact.

Question: Can the DPP institute a mechanism that would encourage scientists and support personnel on the USARP who are or have been in Antarctica to recommend improved conservation practices and techniques in light of their experience there?

Answer: Yes. Several methods to do this have been considered and some are already being developed. Examples include a discussion in the Program Director's "Dear Colleague" newsletter; the production of a video to be seen by all program participants at the staging point enroute to Antarctica; and a segment of the annual USARP Orientation Conference to be devoted to this subject.

Question: What is DPP doing to improve communication and coordination with Antarctic scientific community as represented by the Scientific Committee on Antarctic Research (SCAR) with respect to their work on Antarctic logistics, waste disposal practices, data collection and management, and environmental impact assessment?

Answer: The Director, Division of Polar Programs has initiated a procedure to assemble the officials responsible for planning and conducting respective national programs in Antarctica. The purpose is to coordinate and exchange information relevant to implementation, operation, logistics, waste disposal and environmental concerns. The first meeting was held in 1986 and another will be hosted by the U.S. in June 1987. We expect attendance by 17 of the nations active in Antarctica plus one other nation that is planning an active program.

Question: What is DPP doing to improve consultation with other members of the private sector on the operation of the USARP, such as public interest communities?

Answer: DPP has regular informal interaction with a wide variety of private sector representatives. These include advocates of demilitarization of the program, representatives of various environmental groups, representatives of tourists interests, and media outlets (National Geographic Society, for example), as well as the scientific community. In addition, the National Science Board's Committee on NSF's Role in Polar Regions was briefed in September 1986 by 10 private sector representatives, four of whom were from public interests groups.

Questions Submitted by Senator Lautenberg

Question: A recent report by the Office of Technology Assessment on hazardous waste reduction noted that most European governments have exercised more leadership in waste reduction and have devoted more money to waste reduction than the United States. NSF currently sponsors an industry-university cooperative program at the New Jersey Institute of Technology which researches hazardous waste treatment. While I strongly support this effort to address a serious problem, over the long term we must develop strategies to prevent or seriously reduce the generation of hazardous waste. Before specific technologies can be developed, basic research must be done that answers questions about the impact of waste on the environment and how it can be prevented.

What role does NSF play in supporting such research?

Answer: The NSF Environmental Engineering Program in the Engineering Directorate supports basic research at universities on the impact of waste on the environment, its control and elimination. The Foundation also supports a large number of projects in environmental biology and ecology, including work that looks at changes in ecosystems caused by human activities. Relevant research topics include effects of acid rain; CO_2, the global carbon cycle and climate; effects of excess nitrogen in the environment from fossil fuels and fertilizer. Other areas of current emphasis include evolutionary genetics and microbial ecology, which further the development of better methodologies for assessing the risks of natural and man-made processes and products.

Question: What specific examples can you give of work being done in this area?

Answer: Specific examples of awards made during FY 1986 in Engineering that addressed the impact of hazardous wastes on the environment and how the impact can be minimized or prevented include the following:

- At the New York University Medical Center, Dr. Lily Y. Young is studying the anaerobic biodegradation of hazardous phenols and their effect on genotoxicity.

- At California State University in Long Beach, Dr. Gil G. Geesey is conducting research on the copper-binding properties of polymeric substances produced by bacteria adhering to sediments in natural streams that have been subjected to contact with copper from abandoned mineral deposits. His work may eventually lead to an application for recovery of metals from industrial process wastewaters.

- At the University of Wisconsin, Dr. Martin Ondrus has conducted research in determining trace levels of azaarenes in water. These are a class of substances that are associated with the extraction and processing of minerals for production of liquid and gaseous fuels.

- At the University of Wisconsin Madison campus, Dr. Marc Anderson is studying the aggregation and adsorptive proper-

ties of particles in water toward substances in solution as a step toward predicting the impact of pollutants on natural bodies of water.

- Also at Madison, Dr. Mary Anderson is studying factors that determine the rate at which groundwater pollutants are diffused and dispersed in subsurface media.

Question: Would you agree that American industry's ability to avoid the generation of hazardous waste and to treat waste efficiently, is an important factor in industry's competitiveness?

Answer: There is no doubt that new, more cost-effective methods for dealing with wastes including process modification and conversion of wastes into resources could have a beneficial effect on the industrial competitiveness of the United States.

Question: Would you agree that, as an agency which supports innovative research, NSF should have an interest in expanding the research done in this area?

Answer: NSF through its Environmental Engineering Program has been and will continue to exhibit leadership in addressing the serious problem of coping with the generation and management of hazardous wastes. A new thrust initiated in FY 1987 is specifically directed toward basic research on process modifications to reduce or eliminate waste discharges and by engineering approaches to recovery, recycle and reuse of wastes. There will also be increased support for enhancing biological treatments of hazardous wastes by the use of genetically altered microorganisms.

Question: How much of the NSF budget goes to support basic research in this area? How much of the NSF budget goes to support engineering research in this area?

Answer: It is very difficult to estimate the total amount of NSF basic research that underpins hazardous waste issues. Research in Biotic Systems and Resources alone totals $63 million. Much of the Foundation's $93 million budget for Chemistry could also be counted in this category. For research specifically related to environmental contaminants, including acid rain, the Foundation expects to spend somewhere around $10 million in FY 1987.

The total Engineering expenditures planned for FY 1987 is about $6.0 million. This includes $4 million for the Environmental Engineering program (the amount requested for FY 1988 is $4.4 million) and support of the New Jersey Institute of Technology's Industry/University Cooperative Center for Research in Hazardous and Toxic Substances. The Foundation has recently announced an award for a new Engineering Research Center at the University of California, Los Angeles, to look at hazardous waste issues. This will be a five year award totalling up to $18 million.

Questions Submitted by Senator Mikulski

BASIC RESEARCH

Question: What particular areas of basic research which NSF funds are most helping in revitalizing and retooling American industry?

Answer: In a broad sense, all of NSF's research programs contribute to this effort. The education of future scientists and engineers, and the development of new knowledge and its transfer to industry, are critical to new technologies, products, and an improved competitive posture. The Nation's colleges and universities have the dominant role in this process. The link between research and education is a unique feature of U.S. academic institutions and is their primary strength.

It is often impossible to predict exactly which basic research areas will be most useful to industry in the future. History has shown that research in almost every field has resulted in improvements in products, processes and services. For example, calculations developed through basic research in astronomy a few years ago became the basis of an important modern medical technology called computerized axial tomography: the "CAT" scan. Fundamental research in biology has provided the knowledge base on which America's preeminent biotechnology industry is based. Research in the social and behavioral sciences has provided important insights into such phenomena as organizational behavior, decision making and management practices that are critical to industrial success.

Many of NSF's programs, particularly in engineering, materials research, and computer science can be directly tied to the revitalization of American industry. (For example, in the FY 1987 about $36 million will be spent for research on issues directly related to manufacturing.) The NSF research activities that are the most relevant to industrial competitiveness are described below.

NSF-supported research in microelectronics, computing, communications, and information processing is important to U.S. industry in several ways: (1) industry utilizes the findings in developing their products; (2) research provides the training ground for a work force with advanced skills required for these rapidly innovating, highly competitive industries; and (3) improvements in computing, processing and communications are readily put to work in other industries as tools for industrial design, process control, manufacturing, and office automation.

The Engineering Research Center program is designed to promote research that will ultimately support U.S. industrial competitiveness. Fields selected for funding are at the leading edge of broad technology areas with commercial potential. They range from robotics and manufacturing automation to biotechnology. Advances as a result of these efforts will raise the technological level of relevant industries and help them to more effectively design and deliver products and services to their markets. Results of ERC research is made accessible to U.S. enterprises relatively quickly because of their direct participation. Currently, more than 130 firms are providing support to the ERC's.

American industry. It is also critical in all aspects of materials transformation such as materials design, preparation for subsequent processing, manufacturing, and system integration.

In recent years, NSF has placed increased emphasis on research in the engineering fields of design, automation and manufacturing. The integration of these fields promises to give U.S. manufacturing industries a much better capability to increase their productivity and competitiveness.

NSF also supports research in newly emerging engineering fields that show great promise for enhancing the national economy, employment base and security, such as biotechnology, lightwave technology, and neuroengineering. The potential for lightwave technology, for example, has been increasingly pervasive in the communications, semiconductor, electronics, information storage and signal processing industries.

NSF research in mechanical engineering looks at problems in machine dynamics, control of mechanical systems, acoustics and noise control, novel processing techniques, sensor design for process control, process automation and system integration.

Research in chemical and thermal engineering seeks to expand the knowledge base in a large number of industrial processes dealing with the recovery, conversion and transport of energy and materials.

Question: What specific industries benefit most from this research?

Answer: Because of the relatively broad,generic, character of NSF-supported research, over the long-term, just about every U.S. industry is impacted by NSF basic research. To illustrate, the 11 Engineering Research Centers established during FY 1985 and FY 1986 are listed below, along with the major technological areas upon which they focus, and the industries which they can be expected to significantly impact:

- Carnegie-Mellon University -- Engineering Design
  Industries: general manufacturing, computers, automotive, aircraft

- Columbia University -- Telecommunications Research
  Industries: electronics, computers, communications

- University of Delaware/Rutgers -- Composites Manufacturing
  Industries: automotive, aircraft, plastics and composites, construction, general manufacturing

- Lehigh University -- Advanced Technology for Large Structural Systems
  Industries: construction, steel and concrete, transportation, composites

- University of Maryland/Harvard U. -- Systems Research
  Industries: electronics, computers, communications, transportation, general manufacturing

- Massachusetts Institute of Technology -- Biotechnology Process Engineering
  Industries: pharmaceutical, food processing and agriculture, energy, waste removal, manufacturing

- University of Illinois-Urbana -- Compound Semiconductor Microelectronics
  Industries: electronics, computers, communications

- Ohio State University -- Net Shape Manufacturing
  Industries: general manufacturing, steel, plastics and composites

- Purdue University -- Intelligent Manufacturing Systems
  Industries: general manufacturing, automotive, materials processing

- Brigham Young University/University of Utah -- Advanced Combustion Technology
  Industries: petrochemicals, energy, automotive, aircraft, materials processing, general manufacturing

- University of California - Santa Barbara-- Robotic Systems in Microelectronics
  Industries: electronics, computers, general manufacturing

Question: What are your agency's budget proposals for the specific areas?

Answer: The Foundation's FY 1988 budget proposal identifies three themes underlying its role in improving economic competitiveness: education and human resources ($273 million), science and technology centers and research groups ($529 million), and basic disciplinary programs and facilities ($1.1 billion). All three areas are critical to efforts to strengthen the infrastructure for science and engineering, and for generating new knowledge. All three highlight the long-term nature of NSF activities.

The proposals regarding science and technology centers (including ERC's) have the most direct link with industrial concerns. Interaction between industries and universities is a key feature of these centers. Funding for S&T centers is proposed to increase by $50 million in FY 1988 to a level of about $160 million.

Question: Of these areas proposed for the most increase, could you prioritize, for the record, which of these are most important?

Answer: Specific areas of support are not identified in detail or prioritized in advance. Rather, the Foundation identifies illustrative examples, while remaining open to promising new unanticipated areas.

For example, there is a strong sense that certain areas are ripe for rapid advances and potential applications -- biotechnology, materials sciences, and computer and information sciences. These are multi-disciplinary areas, where many talents are brought to bear on

emerging, complex research topics. Multi-and inter-disciplinary areas have been identified as having high priority through the proposed basic science and technology centers.

We must also provide sustained support in the broadly based disciplinary research programs, which support the most promising work in every field. The nation benefits from significant advances in any field, although the specifics can not always be foreseen.

ENGINEERING RESEARCH CENTERS AND THE MERIT REVIEW SYSTEM

Question: I understand that you are in the process of selecting sites for additional Engineering Research Centers.

I also understand that Johns Hopkins University is one of the finalist for selection.

First, I want you to know I am in full support of the Hopkins grant proposal. I think it is innovative, creative and would add a great deal to the goals of the NSF's engineering research program.

Second, I understand that you have slightly changed the review of these projects from peer review to what is called "Merit Review."

Could you explain the difference between the two methods of review?

Answer: NSF has adopted the term "merit review" to describe more accurately the review process that has evolved over the fifty year history of using peers to evaluate research proposals. Since 1974 the Foundation has taken secondary infrastructure criteria into consideration after the quality of the project has been determined.

Question: Is NSF's commitment under the slightly different review plan going to affect its commitment to select centers based upon who are the best scientists?

Answer: The "slightly changed mechanism" for centers and other large projects you refer to is the use of multi-stage review panels. The first stage assesses scientific excellence. A major factor in that assessment is the competence of the research team. Proposals which survive this screen are then reviewed for infrastructure factors. The process will not compromise NSF's commitment to scientific excellence since less competitive proposals will not survive the first stage of review.

Questions Submitted by Senator Garn

SIGNIFICANCE OF GOVERNMENT EXPENDITURES

Question: It has been observed that the United States exploited a body of basic research which was fundamentally developed in Europe in this century. Further, we now see the Japanese exploiting the work of our basic science to gain similar economic preeminence in the 70's and 80's. The premise of this observation is not the scientific capability of our society that yields economic competitiveness but rather the cultural and economic climate which permits our industrial base to exploit all available technical knowledge, be it domestic or that developed overseas.

Do you agree with this analysis?

Answer: Yes, I agree. An article in the Wall Street Journal in just the last few days makes the point very well. It describes the Japanese reaction to the recent announcements concerning superconductivity. They have clearly mounted an intense effort to replicate the basic work, and then to start the long effort of applying and commercializing the research to create new products. Unquestionably we need to do this also, and do it better than we have in the past.

One of the best ways that we can think of is the move towards science and technology centers on the campuses of our research universities. These are centers of basic research, but they approach the problem in an interdisciplinary manner and with strong involvement of industry. We think they will prove effective in moving research from the basic stage to exploitation.

There are other ways to make our culture more responsive to the need for technological advance. Certainly improved basic education in science and mathematics would be an important step in the right direction.

SUPERCONDUCTING MATERIALS

Question: Perhaps one of the most dramatic "science stories" of this year has been the incredible advance in materials development for higher temperature super conductivity. Some of the most recent and dramatic studies in this area has, in part, been funded by NSF. Please describe these events and outline the role of NSF in these studies.

Answer: Recognizing the technological importance of superconductivity at temperatures higher than currently available, scientists have, for decades, attempted to develop new material compounds and structures that might have higher temperature transitions to the superconducting state. Very little progress had been achieved in the past fifteen years, the highest transition temperatures being in the vicinity of 23K (-250C). The first major breakthrough was reported by a group at IBM Laboratories in Zurich, in which superconductivity in the vicinity of 30K was observed in a mixed Lanthanum-Barium-Copper-Oxygen compound. These results were independently reproduced by C.W. Chu and collaborators at the

University of Houston and a group at the University of Tokyo in late November, 1986. A group at AT&T Bell laboratories then reported similar behavior in a closely related compound.

As important as these discoveries were, the truly exciting breakthrough was reported by the University of Houston group and their collaborators at the University of Alabama, Huntsville: superconductivity at temperatures above 90K was discovered in a Yttrium-Barium-Copper-Oxide system at the end of January, 1987. An important barrier had been breached. Liquid nitrogen, a relatively inexpensive and readily available refrigerant, has a boiling temperature of 77K. Superconductivity was suddenly no longer confined to the world of very low temperatures requiring cumbersome and expensive refrigeration techniques. The announcement of the discovery galvanized the scientific community in an unprecedented manner. Within hours, some two dozen research groups reproduced the results. Important recent developments include the demonstration that a wide range of compounds in the same general class exhibit 90K superconductivity (U. of Houston and others), the fabrication of a flexible tape of the material in a pre-fired state (AT&T Bell Laboratories) and the fabrication of microscopically thin films of the material (Stanford University and IBM).

The National Science Foundation has provided funding for the University of Houston and Stanford University research efforts through the Division of Materials Research and for The University of Alabama effort through the EPSCOR Program. We would also like to point out that NASA also provided funding through its program, Centers for the Commercialization of Space.

Question: One aspect of the dramatic increase in temperature of super conductive materials has been speculation as to possible industrial applications. Most common is the interest in electromagnetic transport - but perhaps more directly to the concerns of this Congress is the impact of higher temperature super conductivity to the proposed $4-6 billion super-conducting super collider (SSC) facility. What potential impact do you see that this breakthrough in super conductivity may have on this project?

Answer: The newly reported high temperature super conductors are a great discovery and continued development should be vigorously pursued. They are however not useful in the fabrication of superconducting magnets (needed for the SSC) at this stage of their development. We don't yet know how to make wire out of the new type superconductor. The current carrying capacity achieved in the new superconductors is much smaller than (one hundredth to one thousandth) the capacity of the niobium titanium of the present SSC design. The amount of superconducting material would consequently increase many fold and would result in much more expensive magnets. Since cryogenics is not a major part of the SSC (about 5%) the increased cost of the magnets would not be offset by a decrease in the complexity and cost of the cryogenic system. Cryogenics would still be required even with the new type of super conductor.

MERIT REVIEW

Question: Congress has been confronted with concerns over the fairness and effectiveness of the merit review system employed by NSF

in awarding research grants. Recently the GAO did a statistical analysis of R&D funds distribution which dispelled, in part, the charge that the "Peer" system has perpetuated awards to only a few select institutions.

In addition, late last year a NSF advisory committee reported on its examination of the competitive review system.

Please outline the findings of these reports.

Answer: Overall, the GAO analysis found that federal research and development funding to universities and colleges by state positively correlates with the demographic and socioeconomic factors of population size, number of employed scientists and engineers, number of Ph.D.s granted in science and engineering, and federal research and development funds to other than universities and colleges.

The GAO also found that when federal research funds are examined by field of science, states and institutions that rank below the top in total federal research funds may become among the top in a particular field of science. Forty institutions that rank below the top 20 in overall federal research funds rank within the top 20 in one or more fields of science.

With respect to merit review, the GAO found that merit review participants at NSF and NIH are less concentrated geographically than are research funds.

The report of the NSF Advisory Committee on Merit Review included the following findings:

- The term "merit review" is more accurate than "peer review" for the process of reviewing, rating and recommending projects. This term recognizes that selection criteria include technical excellence and additional factors such as improving the science and engineering infrastructure, or practical relevance of the research.

- Large projects and centers, and interdisciplinary and multidisciplinary proposals, require different evaluation procedures from those normally used for single investigator proposals. The review procedures developed for the Engineering Research Centers and for inter- and multidisciplinary programs at NSF were recommended as models.

- The review system must operate in a timely and open fashion. Reviewers bear a responsibility to render a balanced judgement, and should receive feedback and acknowledgement. The Foundation should continue efforts to reduce proposal processing time. Efforts should also be made to improve the data system for tracking and monitoring the process of merit review.

- Increasing the overlay of bureaucratic procedures does not assure accountability in the review and project selection process. What is needed is flexibility and the capacity to

make subtle distinctions which stand on the reputations, credibility and professional integrity of program officials and reviewers. In particular, the system must be open to creative and high-risk research proposals.

The Committee also recommended that the process of determining Federal responsibilities in support of facilities for academic science and engineering research be rapidly completed.

Question: In your statement accompanying the advisory committee report you said: "The Foundation does not agree with suggestions in the report that additional review mechanisms are needed or would be efficacious in addressing the problem of bypassing merit review". Please explain this disagreement.

Answer: The Advisory Committee was basically concerned about the absence of careful technical review for facilities projects funded by means of Congressional Committee or floor amendments. They suggested, therefore, that some means of independent assessment of candidate projects be established by the Congress.

The Foundation's disagreement with this suggestion is based on the fifty year history of responsible and responsive decisions made through the use of the peer and merit review process and the belief that establishing new bureaucracies to replace or supplement existing effective mechanisms are not justified.

Question: As the Foundation broadens it efforts to award infrastructure or facility grants - there is an increasing concern that simple technical review is less conclusive, and "political" and other factors become more significant. Do you share this view?

Answer: The Foundation has not used "simple technical review" for many years. In 1974 the National Science Board approved a statement on criteria for the evaluation of proposals. Those criteria, used in the review of all proposals, are: (1) competent performance of the research, (2) intrinsic merit of the research, (3) utility or relevance of the research, and (4) effect of the research on the infrastructure of science and engineering.

Currently, NSF uses multiple panels of experts to advise on selection of large projects, such as Engineering Research Centers. The first panel reviews for scientific and technical excellence. Subsequent review considers relevant factors. The Foundation believes that the primary selection criterion must be quality. But, after excellence has been established, secondary relevance criteria are important.

NSF AND SCIENCE EDUCATION

Question: This committee has a long standing interest in the issue of precollege science and engineering education. Both the Department of Education and the NSF have a number of activities in this area. Would you briefly describe the role of the Foundation in how it differs from that of the Department of Education?

Answer: The National Science Foundation is authorized and directed by statute to initiate and support programs to strengthen science, mathematics, and engineering education at all levels. Since its inception, the Foundation has funded a wide variety of projects designed to enhance the quality and effectiveness of education in the schools.

The Foundation's programs operate through awards to the most highly qualified providers as determined by competition and merit review. Since the need for educational improvement exists in every corner of the land, efforts are made to assure that model direct service activities are appropriately distributed geographically, and that the products of development projects are adaptable nationwide. Historically, the Foundation has had strong ties to the research communities, and has utilized these in many ways to bring disciplinary strength to bear on efforts to improve education in mathematics and the sciences.

Most of the budget of the Department of Education is required to be distributed to the states for specific programs that reach virtually every schoolroom in the United States (e.g., through categorical and block grant programs), and for very large student aid programs reaching millions of individuals. The fraction of the Department's budget allocable to experimental and research activities like those of the Foundation is not large. Because its mandate extends over all subject matter fields, the Department has not developed strong contacts and facile interactions with the research communities in particular fields, such as science, mathematics, and engineering.

Question: Over the last few years, the Department of Education and the National Science Foundation have jointly funded the very successful PBS science education television show known as "3-2-1 Contact". And in January, a new math series called "Square One" began -- also with support provided by the Department and the NSF. We have learned, however, of questions over the Department's continued participation in these efforts. Please outline these problems and what impact discontinuation of such support would have.

Answer: NSF has been the lead agency in establishing these two series and believes that they are an outstanding example of both agency cooperation and the potential impact of mass communication and informal education.

"3-2-1 Contact" now reaches a large and consistent audience of enthusiastic young people. External studies show it to have exceptionally high recognition and impact -- in the 10 year-old target audience and in the even larger audience of younger children. First indications are that "Square One TV" will have similar impact. If an appropriately high and stable level of broadcasting of these materials can be maintained over a period of time, we can expect to see a very large number of children who come to school ready and eager to learn about math and science.

The Foundation has had a lengthy dialogue with the Department of Education regarding its participation in these series. NSF remains optimistic that the Department will continue to provide cooperative

support in the near future, but the firmness and consistency of the Department's commitment for the long term are very uncertain.

NSF is strongly persuaded of the critical importance and profound impact of these projects, and believes firmly that their potential impact is dependent upon stable and consistent support. Leveraging of their effects through tie-ins to in-school use and related museum and science club projects throughout the country (all of which are presently increasing) depends upon steady funding. Educational projects like these require a full ten years of stability and continued production to reach their potential. If the Department were to discontinue its financial participation, serious pressures would be brought to bear on the allocation of NSF's limited resources for education. The Foundation hopes to continue support for these important projects in informal science education -- even if it must be their sole support.

COST-SHARING

Question: Government-wide there are increasing efforts to seek matching funds to augment limited federal grants. I notice that many of the new NSF initiatives such as College Science Instrumentation and Engineering Research Centers require local cost participation.

Can you elaborate on the growing magnitude and use of such matching arrangements. Furthermore, please provide for the record data quantifying the amounts and trends of such cost-sharing.

Answer: Many NSF programs encourage, and in some cases require, cost sharing in supported projects. To some extent cost-sharing has always been a part of NSF procedures, consistent with Federal and Foundation policy that grantees share in research costs. The policy has been a cost-sharing minimum of 1% (NSF Grant Policy Manual, section 640).

The increase in activities with specific cost-sharing features reflects several concerns and goals. Cost-sharing maximizes the effect of Federal funds by using them to "leverage" institutional, state or industrial support. Cost-sharing reflects interest in and commitment to the research, and recognizes the potential benefits that may be derived. It also stimulates fruitful cooperation and partnerships between government, academia and the private sector which enhances the transfer of knowledge. In some cases, substantial cost-sharing requirements are geared to building self-sufficiency, with a view toward scheduled phasing out of NSF support.

The Foundation has several programs which require substantial cost-sharing through commitment of funds, equipment or personnel. There are also activities having major cost-sharing benefits even without such a requirement.

Examples of activities with substantial cost-sharing requirements include Engineering Research Centers, Industry/University Cooperative Research Centers, Advanced Scientific Computing Centers, College Science Instrumentation Program, Biological Instrumentation Program, and major materials development projects in Science and Engineering Education.

In addition, other activities benefit from "leveraged" support although there is no basic requirement. In the Presidential Young Investigator's Program a small initial award of $25,000 is made, and the Foundation will match up to an additional $37,000 in private sector commitments. Materials Research Laboratories (MRL's) have major industry participation. Several efforts in the Computer and Information Science and Engineering directorate involve leveraged funds.

In all, the Foundation's policy of seeking maximum effect of Federal funds, and its encouragement of cost-sharing, led to $185 million in leveraged dollars in FY 1986.

IIASA

Question: The Congress has for the past two years appropriated $500,000 for program support of the International Institute for Applied Systems Analysis (IIASA). These funds, however, have been held up despite repeated reports that security and foreign policy concerns had been satisfied. What is the Current status of these FY 1986 and 1987 funds?

Answer: The Administration believes that it is not wise to fund projects at IIASA at the present time. We believe that our security interest could be better served through bilateral programs, where we have more direct control over Soviet and Eastern block access to scientific equipment and Western data bases. Moreover, we believe that our bilateral political relationships are better served through direct, rather than multilateral, scientific cooperation.

We will be examining the possibility of redirecting the 1986 funding of $500,000 to bilateral programs with the Soviet Union and the Eastern Bloc.

This decision was arrived at after very careful research and review within the Administration. It applies only to the funds identified in the FY 1986 budget. We are prepared to revisit this issue in connection with the FY 1987 budget if new circumstances warrant such a review.

OZONE DEPLETION

Question: Recently, much concern has been expressed over reports of ozone depletion in the atmosphere. The dramatic depletion of ozone over the antarctic has prompted a very significant effort to better understand this phenomenon.

Please describe the NSF efforts in the Antarctic to analyze this issue.

Answer: Investigations of stratospheric ozone over the Antarctic by British and NASA scientists showed a decrease in the total ozone column during the spring (mid-August to mid-November). Upon release of this information, a special program, supported jointly by NSF, NASA, NOAA, and the Chemical Manufacturers Association was designed and carried out during the 1986 austral

spring to investigate the phenomenon. The objective of the program, named the National Ozone Expedition (NOZE), is to determine whether this ozone decrease is an early warning of future changes in global ozone concentrations, or a localized condition that will remain confined to the Antarctic region. The NSF's U.S. Antarctic Program provided logistic support to NASA, NOAA, and university research groups, one of which was funded by NSF. Preliminary results suggest that unique chemical and physical processes may be operative in the Antarctic stratosphere during austral spring, and indicate a need to broaden the investigation. Therefore, NSF plans to support a second National Ozone Expedition (NOZE II) in the austral spring of 1987. Agency and university proposals will undergo a peer-reviewed competition, covering research on the ozone depletion mechanism and on effects of depletion. In FY 1987, NSF plans to provide increased funding ($1 million total) in grants for this research and to continue the logistic support necessary for selected projects.

Question: Fortunately, (or unfortunately) the continuing analysis of last season's data indicates a far more complex stratification of the depletion of ozone in the atmosphere than what can be attributed to simple increased exposure to chlorofluorocarbons.

What efforts does the NSF, and other Federal agencies, intend to pursue in this area?

Answer: As described in the previous answer, NSF will broaden and increase its research support related to this topic. The second National Ozone Expedition will place increased emphasis on in-situ atmospheric measurements and additional ground based observations over the Antarctic. Vertical and horizontal profiles of ozone, trace chemical species important in ozone chemistry, and aerosols are to be obtained utilizing balloons and the NASA ER-2 and DC-8 aircraft. NSF believes it can assist best with the National efforts in understanding the stratospheric ozone depletion problem through its Global Geosciences Initiative and the core program in fundamental environmental research.

EARTHQUAKE ERC

Question: Last year, the award of a new engineering research center on earthquakes led to considerable controversy including charges of plagiarism and other deficiencies in the winning proposal. I understand that NSF reviewed this matter and that the General Accounting Office is investigating this issue.

Please outline your findings as well as the current status of funding for the awardee.

Answer: There were no improprieties in the selection process. The NSF review indicated a number of areas where we could make minor improvements in our procedures for large projects but none of these would have affected the decision as to which proposal to support. Areas for improvement include definition of the cost sharing requirements and timing of the demonstration that such requirements have been met, quicker formation of the review panel, and more sensitivity to the wording of discussions concerning the need for plans for recruiting future staffs of long-term centers.

Both the winning proposal and its chief competitor included, as part of the introductory sections, material taken from other documents without referencing those documents. Neither case involved the substance of proposals. We have reminded both institutions that greater care should be taken to properly attribute all material which had been communicated previously to the community.

We understand that GAO has completed fieldwork for its review but we have not received a draft version of the GAO report.

The project at the University of Buffalo received $840,000 in FY 1986 and $4,160,000 in FY 1987. Approximately $5 million per year is contemplated for the next three years.

U. S. ANTARCTIC PROGRAM

Question: The committee understands that the Foundation has completed a feasibility study on the recovery of an LC-130 aircraft that crashed in antarctica in 1971 and has subsequently been buried in ice and snow. What conclusions have you reached concerning recovery of this aircraft and how do you propose to proceed?

Answer: Lockheed and Navy engineers have determined that the LC-130 that crashed in Antarctica in 1971 can be recovered. It should be possible to repair the aircraft and fly it out next season, probably in January 1988.

Question: If the Aircraft can be returned to service, what impact would it have on the overall logistical portion of the program? How would the addition of the aircraft to the fleet impact the costs associated with fleet maintenance?

Answer: The addition of the aircraft to the LC-130 fleet can, we think, extend the total life of the fleet. Because the airframe of the recovered aircraft has far fewer flight hours, it would be substituted in an extensive rework program for one of the oldest aircraft. Since no significant addition of fleet flight hours is planned, additional maintenance costs are expected to be fairly low--under $1 million per year.

Question: Who currently holds title to the aircraft? What plans have been made to transfer the title to the Foundation? Will legislation be necessary to transfer the title of the aircraft to the Foundation?

Answer: Title to the aircraft is held by DOD, who will transfer it to NSF by interagency agreement, after it has been recovered. Legislation is required (31 USC 1343).

Question: The Committee understands the U. S. Coast Guard Icebreaker Glacier can no longer be used for operational support due to hull deterioration. What plans do you have to address the loss of this ship's availability?

Answer: The lease of an icebreaking research ship proposed in the FY 1988 budget should provide a satisfactory substitute for GLACIER. While it probably will not have as great an icebreaking capability as the Polar Class icebreakers, the research ship will have greater research capability and provides an opportunity to extend the length of the research season in Antarctica.

Questions Submitted by Senator D'Amato

ADVANCED SCIENTIFIC COMPUTING

Question: In 1984, the Foundation developed an Advanced Scientific Computing initiative to provide researchers with access to supercomputers. I understand that the Foundation is cutting back its funding for Phase I of this program.

What are the Foundation's plans for the Phase I program between now and the completion of the Phase II centers?

Answer: The Phase I program was set up as a stopgap measure to purchase supercomputer services for the NSF scientific community during the period in which the long term NSF Phase II centers were being established and made operational. The Phase I program provided interim services beginning in mid-1984 and overlapped the initial year, 1986, during which the Phase II centers began to provide services. Phase I activity has ceased. There is some use on the CRAY-2 at Minnesota that is due to be completed by the end of March. Most Phase I users have now migrated to the Phase II centers.

Question: What are the implications of the Phase I cutbacks for the future of the Phase II centers, which include Cornell University in New York?

Answer: The Phase I cutbacks have allowed the NSF to concentrate its resources into the Phase II centers for upgrades and other service improvements which include Cornell University.

MINORITIES IN SCIENCE AND ENGINEERING

Question: The Foundation has stated its intent to address the underrepresentation of minorities in the fields of science and engineering.

What are the current figures relating to minority participation in research and Engineering?

Answer: In 1984, racial minorities accounted for about 9 percent (354,000) of overall employment of scientists and engineers. By racial group, blacks represented about 2 percent of employed scientists and engineers but they accounted for 10 percent of total U.S. employment. In contrast, Asians represented almost 5 percent of S/E employment and less than 2 percent of overall U.S. employment.

Hispanics constituted a 2 percent share (87,000) of employed scientists and engineers but about 5 percent of total U.S. employment.

There are differences in distribution across science and engineering fields by racial/ethnic group. Almost two-thirds of Asians were employed as engineers, primarily in electrical, civil, and mechanical engineering. Blacks, on the other hand, were more highly concentrated in the sciences, predominately the social and behavioral sciences and computer specialties. The field distribution of Hispanic scientists and engineers was similar to that of blacks.

Racial and ethnic minorities account for a larger fraction of science and engineering degrees awarded at the bachelor's and master's level than they do at the doctorate level. Almost 38,000, or about 12 percent of the total, S/E bachelor's degrees were earned by minorities in 1983; at the master's level, over 6,100, or 13 percent, were granted; and at the doctorate level in 1985, almost 1,450 degrees were conferred to racial and ethnic minority groups members, accounting for about 8 percent of Ph.D.s overall.

Question: What specific measures will the Foundation take to encourage greater minority participation in these fields?

Answer: The Foundation has special programs to encourage increased participation by minorities in science and engineering. In addition, attention is given in other ongoing activities.

Focused efforts in FY 1988 will include:

- Minority Graduate Fellowships (MGF), which comprise 10% of the National Science Foundation's prestigious Graduate Fellowship Program. ($3.2 million est.).

- Minority Research Initiation (MRI), to provide research opportunities for minority scientists and engineers who have not previously received Federal research support. Many MRI awardees have subsequently be successful in gaining continued research support from NSF and other agencies. ($2.9 million est.).

- Research Improvement In Minority Institutions (RIMI), and Minority Resource Centers of Excellence (MRCE), to upgrade research and training capabilities at minority institutions in fields supported by NSF. ($9.0 million, est.).

- Resource Centers at institutions with significant minority enrollment. The Resource Centers effort, proposed for FY 1988, takes a comprehensive approach through support for model activities at all levels of education -- precollege through graduate -- to increase participation by minorities in science and engineering. ($2.5 million, est.).

- Research Career Opportunities, proposed for FY 1988. This program will support activities aimed at career choice points, to encourage decisions by minorities and women to begin or continue studies in science and engineering. ($0.9 million est.).

In addition to special programs, attention is given to minority participation through other activities:

- Research Assistantships for Minority High School Students provides supplements for work with NSF principal investigators. In the Research Experiences for Undergraduates (REU) program, projects involving minority, students are given high priority.

- Discipline-related activities are focused on minority underrepresentation. For example, in FY 1988 support is planned

in Geosciences for minority resource centers.

- In the Science and Engineering Education Directorate, a special solicitation is planned in FY 1988. Proposals will be invited for projects in preservice and in-service teacher education, addressing methods to encourage full participation of minority, female and disabled students in science and mathematics studies.

- The Foundation has improved its data collection and information management system. There is now the capability to track and monitor participation of minority investigators and minority institutions in all NSF programs.

PRECOLLEGE SCIENCE AND MATHEMATICS EDUCATION

Question: An issue of growing concern to our Nation is the decline in science and mathematics achievement among our students. This deficiency needs to be addressed, beginning at the precollege level.

What types of precollege science, mathematics, and engineering programs have you scheduled for Fiscal Year 1988?

Answer: The Foundation's budget request for FY 1988 includes precollege activities addressing teacher preparation and enhancement, materials development, outreach to students, informal science education, research in teaching and learning, and studies and assessments. In all, over $68 million is requested for precollege education.

Activities for teachers are targeted on improving the science and mathematics components of preservice teacher preparation and the subject matter competence of teachers presently in service. Emphasis is on the development of model teacher education programs. Support is also provided for information and resource sharing networks that link precollege teachers, college teachers and scientists. Outstanding precollege teachers in each state are recognized yearly through Presidential Awards for Excellence in Science and Mathematics teaching.

Special attention will be given in FY 1988 to the preparation of secondary school teachers who must teach courses in more than one science; projects providing teacher education aimed at increasing the participation of minority and women students in science and mathematics studies; and teacher enhancement projects addressing the use of computers and other modern technology in the classroom.

Materials development efforts focus on development of classroom materials that reflect the state of scientific knowledge, are grounded in the best research on teaching and learning, and are well adapted to the needs of diverse student populations. Emphasis in FY 1988 will continue to be on development of prototypes and exemplary material. Special attention will again be given to joint projects by school systems, education materials developers and publishers to provide a number of high-quality, alternative science programs for use in typical elementary schools. Support is also provided for research and development on the applications of advanced technology for instruction: hardware, software, systems and languages.

In FY 1988 the Foundation will initiate a young scholars program for students in grade 8 - 12, to provide enrichment experiences in science, engineering and mathematics. The program is designed to increase interest in scientific and technical careers and strengthen skills for more advanced study.

The Foundation supports the development of a rich environment for informal learning and motivation at the precollege level through support of television programs, museums and science clubs. The request for FY 1988 continues these activities, including support of the major PBS television science series "3-2-1 Contact" and the new mathematics series "Square One TV".

Increased support is provided for research on factors that underlie effective teaching and learning. Support will continue for studies and analyses of data on national trends in science and mathematics education.

COMPUTER GRAPHICS RESEARCH

Question: Computer graphics technology is an emerging advanced technological field of research and development. This technology has the potential to provide enormous scientific, defense, and economic benefits for our Nation.

Could you provide some examples of what NSF has done in this field or what activities you plan to undertake in the future concerning computer graphics technology?

Answer: Computer graphics is emerging as a pivotal element in the advance of all areas of science, engineering, and technology. It is the cutting edge of widespread technical work supported by the Foundation, aimed at linking the human senses effectively to computing power. Virtually every research area which the Foundation supports is affected by this rapidly developing technology. Modeling of molecules for chemistry and biology, the tuning of mathematical methods for optimization, the design of physical devices and computing systems, the presentation of the earth's features and resources: all employ computer graphics for modeling and analysis.

Since 1968, NSF has been supporting academic research in computer graphics at several universities. Included among them have been Cornell University at Ithaca, NY, the University of Utah at Salt Lake City, the University of North Carolina at Chapel Hill, the University of Texas at Austin, Stanford University at Palo Alto, CA, MIT at Cambridge, MA, SRI at Palo Alto, CA, and Ohio State University. This research has led to many improvements in the algorithms for shading, coloring, representing textures and surfaces, eliminating hidden lines, and other fundamental operations that are necessary for good graphical representation of images on computers. NSF has also supported research leading to development of a fast, special purpose computer for computing and displaying images at the University of North Carolina.

This fundamental academic research has been used extensively by the computer graphics industry which has grown to substantial size during the last twenty years to provide graphic images for television, movies, and other purposes. The industry has also contributed a

great deal to the advance of graphics technology and has worked in close harmony with NSF-sponsored research to reach the present level of realism in computer graphics. A significant discovery was the concept of fractals by Mandelbrot at IBM. This is a mathematical construction that allows remarkably realistic representation of many natural earth features in landscapes and sky. Techniques based on this concept are used in research in mathematics, computer science, physics, mechanical engineering, and other disciplines, as well as for applications, such as flight training simulators.

Computer graphics also has great significance for the representation of results from the solution of science and engineering problems on supercomputers because very complex phenomena can be made more understandable through graphs and images. For this reason, NSF is embarking upon a program of research in "visualization" for science and engineering within the Directorate for Computer and Information Science and Engineering which will develop computer graphics as a tool for research in all of the disciplines.

In addition to computer graphics developments driven from the "grass roots" of scientific and engineering research throughout the Foundation, future work on the vital core technologies of computer graphics is fostered specifically by the Computer and Information Science and Engineering Directorate. Graphics systems and languages work is promoted within the Computer Systems Architecture and Numeric and Symbolic Computation Programs of the Division of Computer and Computing Research. The Division of Information, Robotics, and Intelligent Systems supports, in several programs, work not only in computer graphics, sound, touch, and other sensory technologies, but most importantly, on the effective use of these technologies in research, educational, business and industrial settings.

SCIENCE AND TECHNOLOGY CENTERS

Question: The NSF is proposing the establishment of fifteen interdisciplinary Science and Technology Centers. These would be modeled after the NSF's Engineering Research Centers.

What is the NSF's timetable for bringing these centers on line?

Answer: In February the National Science Foundation requested the assistance of The National Academy of Sciences in shaping the approach used to establish and administer the new basic science and technology centers. The National Academy of Engineering played a similar pivotal role with regard to the Engineering Research Centers.

The Academy will assemble a broadly representative ad hoc group to consider several issues: promising areas of science where centers can make a significant difference; characteristics of centers and their relation to economic competitiveness; forms of state and industrial participation; support required over time; governance of centers; centers' contribution to science and engineering education; monitoring mechanisms and sunset rules; and ground rules for the solicitation of proposals.

A report from the Academy is expected in June. Based on this report and further discussion, the Foundation intends to issue later this year a solicitation to implement the Science and Technology Centers initiative, inviting proposals from the full range of scientific disciplines. The first Science and Technology Centers would receive awards in FY 1988.

Question: What criteria will the NSF use to select universities for participation in the program?

Answer: The Foundation has certain criteria that are applied to all projects. In addition, specific criteria may developed for special activities such as centers.

The four criteria established by the National Science Board for the evaluation of all proposals are (1) research performance competence, (2) intrinsic merit of the research, (3) utility or relevance of the research, and (4) effect of the research on the infrastructure of science and engineering.

Additional specific criteria for basic science and technology centers are not yet final. The June 1987 report from the National Academy of Sciences will play an important role in the development of specific criteria, as will the Foundation's earlier experiences with centers. In general, once center proposals have been evaluated for scientific quality, they will be further evaluated for potential contributions to national competitiveness, undergraduate and graduate education, technology transfer, and other aspects of the research infrastructure, and for evidence of industrial and other participation.

Questions Submitted by Senator Domenici

5-YEAR FUNDING COMMITMENT

Question: I commend you, Mr. Bloch, and the Administration for its strong commitment to basic research with an FY 1988 request of $1.9 billion, or almost 17 percent more that the FY 1987 level. Even more importantly, the Administration has made a commitment to double NSF's budget to $3.2 billion over the next five years.

Would you please give the Subcommittee your assessment of the value of a long-term commitment to increased funding for research?

Answer: The commitment to a five-year plan for doubling the Foundation's budget reflects the critical role that new knowledge and education play in economic competitiveness. The nation's science and engineering enterprise must have resources for basic research and education, even in times of fiscal stringency, to ensure a viable infrastructure for educating our next generation of scientists and engineers and generating new knowledge.

A significant increase in basic research and education support in our universities will keep our research enterprise at the cutting edge, and reinforce the unique linkage between education and research. But the nature of education and research is long-term. Many of the Foundation's proposed thrusts are spread over many years.

Sustained funding over at least a five year time horizon allows for better planning and avoids "roller coaster" effects. Long-term commitment to increased funding establishes a strong base from which to formulate long-term strategies, projects and programs.

Question: What, in your opinion, are the future research areas that such a commitment would stimulate or enhance?

Answer: It would be nice to have a crystal ball. We do not want to have a constraining effect by identifying in some final way future research areas to be stimulated by long-term commitment. Basic research is unpredictable, and areas of great potential might not be recognized. On the other hand, complete lack of foresight or consideration could mean an unfocused effort. NSF can play a valuable role in the middle ground, by identifying illustrative examples while remaining open to new directions.

For example, there is a strong sense that certain areas are ripe for rapid advances and potential applications -- biotechnology, materials sciences, and computer and information sciences. These are multi-disciplinary areas, where many talents are brought to bear on emerging, complex research topics. We have identified multi-disciplinary and interdisciplinary areas as having high priority through the proposed basic science and technology centers.

We must also provide sustained and growing support in the broadly based disciplinary research programs, which support the most promising work in every field. The nation benefits from significant advances in any field, although the specifics can never be foreseen.

Question: Would you please give us your thoughts on the impact of a long-term funding commitment on the future supply of scientists and engineers?

Answer: The nation's science and engineering base has three elements: people, facilities and equipment. Adequate facilities and equipment can be obtained relatively quickly -- it takes money. The development of a scientist or engineer takes many years.

Demographic data show us a future with proportionally fewer young people. To assure an adequate supply of highly trained scientific and technical personnel we must continuously attract talented young students into science and engineering studies. Interruptions in this process take years, even decades, to overcome. The market system fluctuates too rapidly to ensure an adequate supply, and the education system cannot respond quickly.

There must be a long-term commitment for support of research, to attract young people into a vital enterprise. And there must be long-term support for education at all levels -- precollege through graduate training -- to assure a steady flow of human resources.

BASIC SCIENCE AND TECHNOLOGY CENTERS

Question: Director Bloch, one of the Administration's major initiatives for NSF is the establishment of new basic science and technology centers at a cost of $50 million in FY 1988.

Would you please give the Subcommittee a status report on the progress being made to establish the new centers?

Answer: The new basic science and technology centers will extend the general concept of successful Engineering Research Centers across the full spectrum of scientific disciplines. The $50 million increment in FY 1988 for centers includes both the new centers and continued support for existing center activities.

In February the National Science Foundation requested the assistance of The National Academy of Sciences in shaping the approach used to establish and administer the new basic science and technology centers. The National Academy of Engineering played a similar pivotal role with regard to the Engineering Research Centers.

The Academy will assemble a broadly representative ad hoc group to consider several issues: promising areas of science where centers can make a significant difference; characteristics of centers and their relation to economic competitiveness; forms of state and industrial participation; support required over time; governance of centers; centers' contribution to science and engineering education; monitoring mechanisms and sunset rules; and ground rules for the solicitation of proposals.

A report from the Academy will be available in June.

Question: Has NSF established specific criteria for the new basic science and technology centers? If so, what are those criteria, and when does NSF expect to accept applications for the program? If not, what is your timetable to proceed with these activities?

Answer: The Foundation has certain criteria that are applied to all projects. In addition, specific criteria may developed for special activities such as centers.

The four criteria established by the National Science Board for the evaluation of all proposals are (1) research performance competence, (2) intrinsic merit of the research, (3) utility or relevance of the research, and (4) effect of the research on the infrastructure of science and engineering.

Additional specific criteria for basic science and technology centers are not yet final. The June 1987 report from the National Academy of Sciences will play an important role in the development of specific criteria, as will the Foundation's earlier experiences with centers. In general, once center proposals have been evaluated for scientific quality, they will be further evaluated for potential contributions to national competitiveness, undergraduate and graduate education, technology transfer, and other aspects of the research infrastructure; and for evidence of industrial and other participation.

TECHNOLOGY TRANSFER AND NATIONAL LABORATORIES

Question: Mr. Bloch, on page 8 of your testimony, you discuss the concept of coupling industry with academic research through the new basic science and technology centers. You indicate that this interaction has the "potential to improve technology transfer from research labs to industry and to the market place."

I am delighted by your recognition of the fact that there is a phenomenal body of science and technology that could, and should in my opinion, be transferred to industry from the academic community. Do you include the nationally-supported research laboratories, such as Los Alamos and Livermore, in your definition of "research laboratories"?

Answer: Yes. For the nation to receive maximum benefit from the science and technology centers, national laboratories and other agencies logically ought to be involved.

Question: In NSF's proposal for the new basic science and technology centers, do you anticipate a role for the national laboratories, such as Los Alamos, in the program? If not, why not?

Answer: The President's competitiveness initiative, including basic science and technology centers, is a mandate to all relevant agencies, not just NSF, to promote the development of science and technology. The Foundation will actively participate with others in the implementation of the centers initiative.

The centers envisioned by NSF could offer many important benefits and advantages to mission agencies. Mission agency support could also be helpful in facilitating technology transfer. Joint efforts among several agencies and national labs could be very fruitful. Support and participation of other agencies and national labs will be explored.

SCIENTIST AND ENGINEER SHORTAGES

Question: Director Bloch, it is a pleasure to see you this morning and to hear your commitment to the future scientific achievement and greatness of the Nation. I commend you on the progress you have made at NSF to highlight the importance of basic research to education and to the economy, and of course to the United States' ability to compete in the world economy.

Even though the overall NSF budget has increased by 66 percent between 1980 and 1987, you testify that there are shortages of scientists and engineers developing in a number of fields. What areas are experiencing these shortages and to what extent?

Answer: Shortages of qualified personnel in several scientific and technical fields have been persistent in both academia and private industry. It seems likely that these problems could worsen substantially through the 1990's because the projected demand for scientific and technical personnel has increased and because changing demographics will adversely affect the supply.

In the Nation's major R&D universities, between 7 and 8 percent of full-time faculty positions have been unfilled for a year or more in aeronautical, chemical and mechanical engineering, biochemistry and biology; in industrial engineering and microbiology the percentage is between 9 and 10, and in computer sciences almost 13 percent. Shortages in engineering faculty have contributed to a rise in the national faculty/student ratio from 12 to 1 a decade ago to the current ratio of 20 to 1, and to an increasing reliance on immigrants to staff science and engineering faculties. Over 17 percent of the scientists and engineers employed by universities and 4-year colleges are of foreign origin.

In private industry, shortages of qualified personnel have existed in several scientific and technical fields since the late 1970's. Our fall 1986 survey of a national sample of employers of scientists and engineers found that 20 percent or more of the establishments employing electrical/electronics, and computer engineers and chemists reported shortages for these fields. Shortages are defined as vacant positions that go unfilled for 90 days or longer, even though active recruitment is being undertaken. Smaller, but significant proportions of employers reported shortages for aeronautical/astronautical, manufacturing, and nuclear engineers, biochemists, and computer specialists. Without the more than 17 percent of industrially employed scientists and engineers from abroad, shortages would be substantially worse.

Question: NSF proposes a 50% increase in funding for education and human resources activities, from $182 million in FY 1987 to $273 million in FY 1988. What proportion of these funds, if any, would be utilized to address such shortages on a short-term basis?

Answer: The development of human resources for science and engineering is a long-term undertaking. Most of the Foundation's funds in this area are thus critical investments which must be made now to address the future.

A small portion of our efforts could be seen as having short-term impact. For example, the Presidential Young Investigators (PYI) program (over $50 million estimated for FY 1988) directly addresses the need to encourage young scientists and engineers to enter academic careers. Almost 60% of the PYI awards are in engineering and computer science fields, where faculty shortages are particularly acute. Special programs for post-doctoral support have also been developed in areas of immediate need such as plant and environmental biology ($ 2.7 million estimated for FY 1988) and mathematical sciences ($ 2.4 million estimated for FY 1988).

BIENNIAL BUDGET CYCLE

Question: Calls for budget reform are increasingly heard as budget deadlines are too often missed, important budget decisions are delayed appropriation bills and other direct spending legislation are held up in committee, and omnibus spending bills take the place of timely and orderly consideration of individual bills. One procedural reform that is being considered is the two-year budget cycle where budget and appropriations matters would be considered in the first year, and authorizations and oversight would be undertaken in the second year.

Would your department/agency favor a biennial budget process? What benefits would your agency achieve in a two-year appropriation cycle?

Answer: The Administration is studying the subject of multi-year budgeting and whether to propose biennial budgeting for appropriations for accounts other than those in the national defense area. Biennial budgeting would appear to have substantial advantages for a number of agencies.

With respect to our own agency, the two-year cycle would facilitate our planning and execution of the budget. Operating plans could be developed and implemented over a longer period, providing greater stability, clearer direction for programs, and a meaningful opportunity to address longer-term goals and objectives. It would help us avoid the abrupt stops and starts that sometimes result because of short-term budget fluctuations. This can result in important savings in both human effort and funds. Agencies would then have more time to assess performance and develop more thoughtful plans.

We think these benefits would also flow to the scientific and engineering community that we support, with similar results.

Question: Approximately what proportion of your annual appropriation request would you consider simply repetitious of the previous years' submission?

Answer: The budget process necessarily focuses on those areas in which change is proposed--new or expanded efforts, changes in policy or program balance, and reductions and terminations of activities. In order to assess these proposals, however, the Congress must have a good understanding of the base from which they will proceed.

In the NSF budget request, proposed changes are set forth in the Introduction and Summary, which usually comprises about 20% of the budget narrative. Although these changes are, of course, reflected in the justifications for each Activity and Subactivity, the main purpose of the more detailed sections is to address ongoing activities and document prior actions. This part of the documentation changes relatively little from year to year.

Question: What difficulties can you foresee in preparing and submitting a two-year budget to the Congress?

Answer: For the NSF, there are few, if any, difficulties in preparing and submitting a two-year budget. The most significant problem would be that of schedule delays. For example, continuing resolutions and appropriations delays would negate the stability and predictability features of the longer cycle.

Similarly, the two-year system must also provide reasonable, workable ground rules for reprogramming actions and supplementals. Even under the current one-year cycle, the lag time between the development of budget estimates and the beginning of the budget year is about 18 months.

Questions Submitted by Senator Grassley

POLICY TO PROTECT OUR NEW TECHNOLOGIES

Question: Mr. Bloch, I share your enthusiasm for the importance of education and basic research in science and engineering in our fight to restore our nation's economic competitiveness. Nevertheless, major problems seem to exist, and I would like your thoughts about them.

For instance, high technology, for some time, offered some real hope for new jobs for the U. S. Unfortunately, it seems to be all too easy for foreign interests to secure the fruits of our work, and then turning our technological advancements against us.

First of all, do you see this as a major problem?

Second, do you have any thoughts as to what we can do about it?

Answer: There is no question that we have not been as effective as we should be at transferring new knowledge from research laboratories to industry, where it can be applied to develop new products and processes. A competitive economy must accomplish this smoothly and rapidly. It is also true that some of our competitors have accomplished this better than we have. So yes, this is a major problem.

What we have to do about it is to get all parts of the R&D enterprise working together cooperatively. We cannot prevent other countries from aggressively applying new knowledge to commercial objectives. But we can do it better ourselves -- much better. One way is through science and technology centers, which can bring university and industrial researchers together to work on important basic research problems.

Better education in science and engineering is also part of the answer. Better education will give us more people -- in industry, business, government and all the professions -- with an understanding of the importance of technological innovation. This will help change attitudes, and make it easier for our institutions to focus on long run solutions, rather than quarterly reports.

Question: Mr. Bloch, does the National Science Foundation play any role in the development of policy to protect our new technologies?

Answer: Yes, we do. Although the Foundation has no direct responsibility for policy on protection of technologies for national security ends, we are actively interested in such policy, particularly as it affects the kind of research we fund. Recently we helped OSTP lead an interagency Working Group that advised the Commerce Department on application of export controls to scientific communication. In what had seemed an intractable area, the Working Group forged a solid interagency and national consensus that seems to have put the primary issues to rest. We now are helping the Commerce Department digest comments on its proposed regulations and hope final regulations will be issued within a few months. More generally, the Foundation helped fund the recent widely-reported study on US

National Export Controls and Global Economic Competition by a National Academy of Sciences panel headed by former Air Force Chief of Staff Lew Allen. We also participate in interagency policy discussions on other issues related to national-security technology controls and provide technical briefings for officials with more direct responsibilities in the area.

A different kind of protection for our new technologies relates to preserving the competitive advantage they can afford US industry. We have participated in policy discussions in this area as well, particularly on protection for new forms of intellectual property and protection for all forms of intellectual property against international "pirating". We particularly draw the Committee's attention to the President's proposal for effective sanctions against importing products made by patented processes.

In general, the NSF opposes restrictions on international cooperation in basic research or on public availability of results from such research. We believe such restrictions will likely do the United States more harm than good. Openness on our part assumes, however, reciprocal openness on the part of other nations. We are actively engaged with some success, in seeking to ensure full access for US researchers to Government-supported laboratories in Japan.

Question: Mr. Bloch, the President's Commission on Industrial Competitiveness was chartered by President Reagan to recommend ways to increase long-term competitiveness in U. S. industries at home and abroad.

One of its recommendations was to strengthen the foundation for science and technology through the creation of a Cabinet-level Department of Science and Technology.

What are your thoughts on this proposal? Is it a good idea?

Answer: The proposal to establish a Department of Science and Technology has been advanced a number of times, with mixed response from the scientific community, within Congress and the Administration. There is no clear consensus regarding the effect such a department would have on science and on the government. We need a clear understanding of what a new organizational approach would bring to the problems we face.

The establishment of a "superagency" raises questions about which agencies, departments or sections of agencies would be included. The form of such a department is also important. We must be careful not to lose the positive effects of the pluralistic approach that exists today in Federal support for science and engineering research.

It is clear that many issues need to be thought through before such a step is taken.

Questions Submitted by Senator Inouye

OCEANS RESEARCH

Question: Does the National Science Foundation believe that the utilization of the ocean's resources is of strategic importance to the United States?

Answer: The President's Declaration of the Exclusive Economic Zone explicitly recognizes the economic and strategic importance to the Nation of ocean resources and of the ocean itself.

Question: What initiative or plans does the National Science Foundation have for ocean technology research (which has a potential to create new products and jobs)? What funding levels are planned for this endeavor? How does this funding compare with funding for ocean science research?

Answer: NSF is the primary source of support for much of the Nation's basic research in the oceans, and a significant part of that research has a technological component. About 10% of the 1987 Ocean Sciences Division budget of $133.66 million will support engineering and other technological research. Within the Oceanographic Centers and Facilities program element, funding is provided for research and development on a wide range of instrumentation and other ocean-based technical activities; the Ocean Drilling Program has a major engineering component which has developed many of the technologies employed in offshore drilling and mining industries. Support from NSF Ocean Sciences has also been critical to the development of manned and unmanned submersible technologies, underwater photography, and remote sensing, all of which have significant economic and strategic applications.

In addition, the Engineering Directorate is proposing a new effort to support research which is aimed at the design and synthesis of solutions to engineering problems in the ocean environment. The Engineering Directorate has been working with the community to develop such a program. An NSF-sponsored conference on technological requirements for utilization of offshore resources was hosted by the University of Hawaii in October 1986, and a follow-up meeting is scheduled for Fall 1987 in San Diego. The Marine Board of the National Research Council has also given strong support to the establishment of such a program and is assisting in its definition. In Fiscal Year 1987, about $400,000 has been provided to initiate this work; the FY 1988 budget request for Engineering includes $2 million for expansion of this program.

Question: Does the National Science Foundation plan to have an engineering research center with an ocean resource focus?

Answer: There are a number of very interesting problems in ocean engineering and ocean technology which could provide the focal point for an Engineering Research Center or for one of the new Science and Technology Research Centers proposed for initiation in 1988. NSF does not prescribe the topics for Centers, however; topics are suggested by the proposers. Proposals for Centers must undergo

rigorous merit review; so far, the proposals submitted in the general field of ocean engineering have not fared well in that process.

EXCLUSIVE ECONOMIC ZONE

Question: I understand that the National Science Foundation sponsored a conference on the utilization of the exclusive economic zone resources. What initiative does the National Science Foundation plan to implement to fully utilize these EEZ resources? What level of funding, and over what periods of time are these planned for?

Answer: NSF funded an international conference addressing research needs relevant to ocean technologies. Some critical technologies were identified which, if made available, would enable expanded commercial utilization of ocean resources. The report concludes that an NSF-funded program of research in ocean engineering should concentrate on removing critical barriers to the development of these technologies. This will be critical to the development of low-cost, safe, effective capabilities to provide ocean generation of food and fiber, energy production and distribution, non-traditional transportation, and the occupation of ocean space. This initiative is included in the FY 1988 Budget Request within the Large Scale Non-Linear Systems (LSNS) program of the Electrical, Communications and Systems Engineering subactivity.

Question: Is the National Science Foundation planning any international cooperative ventures involving ocean technology?

Answer: The Ocean Drilling Program, as well as its predecessor the Deep Sea Drilling Project, is one of the largest cooperative international research efforts in existence. Canada, France, West Germany, Japan, the United Kingdom, and a consortium of other Western European countries are participants. The engineering component of that program is funded at an annual level of about $2 Million. It has been the source of many of the technologies used in offshore resource assessment, drilling and mining operations.

The NSF-sponsored international conference on research needs relevant to ocean technologies has stimulated considerable discussion in this area. A workshop is planned later this year to identify possible topics for U.S.-France cooperative research. We expect that other cooperative ventures will emerge, both at the level of individual project research and through more formal bilateral and multilateral efforts.

COMPUTER-BASED TUTORS AND IMPROVED TEACHING METHODS

Question: What is the National Science Foundation doing to develop computer-based tutors and improved methods of teaching science and engineering at the primary and secondary school level?

Answer: The Foundation is making significant efforts to advance the state of the art of computer-based science and mathematics education. Over the years, NSF has played a major role in the development of "BASIC," "LOGO" and "PLATO," and other computer-centered educational tools. This tradition continues with efforts to

realize the potential of artificial intelligence techniques that may well lead in the long term to realization of a "tutor in a box" that can speed and enhance learning by all students.

NSF is also exploring the problems associated with implementation of current technology. Recently, six projects were funded to explore how elementary school mathematics and problem solving skills might benefit from incorporation of calculators and computers into the curriculum. This is a direction that is strongly endorsed by every major association of mathematicians and mathematics educators.

We have an extensive program to develop improved methods and materials for science and mathematics in elementary and secondary schools. This effort embraces not only improved models in most subject areas, but more important, a new effort to work with both the private sector and major school systems to develop a consistent and coherent pattern of mathematics and science education throughout the K-12 period.

The absence of this coherent pattern is a major difference between the U.S. and countries that show higher student achievement. Our goal is to provide a number of alternative K-12 materials packages that can be considered by typical school systems.

Question: How is the National Science Foundation addressing the task of improving the teaching of science and engineering to minorities, women and the handicapped?

Answer: The Foundation has many projects in the areas of teacher training and materials development devoted specifically to the improvement of education for members of groups underrepresented in mathematics, engineering, and the sciences. Television series such as the highly successful PBS science education show "3-2-1 Contact!" and the new math show "Square One TV" (both funded jointly by NSF and the Department of Education) are only two examples; they make specific efforts to reach these groups and are proving to be very effective.

Other activities include such things as a Florida project to develop science museum exhibits for the blind, support for career information for disabled students, special projects for the hearing impaired (all NSF grants for television activities require that the final product be close-captioned for the deaf), and many other similar projects.

In FY 1988 $2.5 million is requested to begin a Science Career Access Program designed to increase the participation in science, mathematics, and engineering of school and college students in underrepresented groups. The program would support, for example, the establishment of resource centers at institutions with significant minority enrollment; these centers would work with both college and precollege students.

All of the Foundation's education projects include activities or efforts encourage, support, and meet the needs of underrepresented groups. We consider this a very important and ever present goal.

SENATE ENVIRONMENT AND PUBLIC WORKS COMMITTEE

[CLERK'S NOTE: The Senate Environment and Public Works Committee has requested that the following questions be submitted to the National Science Foundation for their response.]

PROGRAMS

Question: Please describe each of your program(s) which directly or indirectly involve or support work on (a) the greenhouse effect, (b) climate change, and (c) stratospheric ozone depletion, including:

(a) basic research efforts
(b) effects on human health, biota, etc.
(c) studies of policy options for avoiding, minimizing, or coping with predicted changes, including use of alternative fuels and substitute chemicals and conservation.
(d) international programs.

Answer: The National Science Foundation supports basic research on climate, the greenhouse effect, and ozone through its grant programs and the National Center for Atmospheric Research (NCAR). The scientific programs that support the majority of the research on these topics are:

CLIMATE DYNAMICS--This research is aimed at development of a comprehensive theory of climate that would also serve as a basis for predicting climate variations and for assessing their impact on human affairs. The three general areas of research supported are the assembly and analysis of modern and paleoclimate data; theory, simulation and prediction of climate, especially through model development; and climate impact assessment.

ATMOSPHERIC CHEMISTRY AND POLAR ATMOSPHERIC SCIENCE--Within this program, projects are supported that study the chemical and physical processes acting on contaminants and natural atmospheric constituents which may be related to climate change.

GLACIOLOGY--Research in the Arctic and Antarctic contributes to understanding effects of climatic warming on ice sheets and provides a long-term record of temperature, precipitation, and atmospheric trace gas changes.

ECOLOGY/ECOSYSTEMS--Within these programs research is aimed at the interrelations of organisms as they exist in their natural environment. Of particular relevance are ecological relationships in the biosphere (global ecosystem) and the biogeochemical cycling of nutrient elements through soil, water, and the atmosphere.

In order to achieve specific research objectives, there are often organized programs involving cooperative efforts by several scientists. One recent such effort is directly related to the ozone depletion question. The National Ozone Expedition (NOZE) supported by NSF, NASA, NOAA, and the Chemical Manufacturers Association was

deployed in August 1986 to study the ozone hole over Antarctica. Logistic support to the research teams was provided by the NSF-managed U.S. Antarctic Program. A second NOZE program is planned for late FY 1987-early FY 1988.

In FY 1987, NSF initiated a Global Geosciences program consisting of studies of the earth as a system of interrelated physical, chemical, and biological processes. Studies of the greenhouse effect, climate change, and stratospheric ozone depletion are research areas that are embedded within the Global Geosciences initiative, especially the Tropical Oceans/Global Atmosphere (TOGA) program and the Global Tropospheric Chemistry Program (GTCP). One of the primary goals of the GTCP is to allow scientists to couple the chemical and the physical phenomena in mathematical simulations for predicting future chemical changes in the atmosphere.

(b) NSF has the broad objective to advance knowledge of the interrelations of organisms and their natural environment, and in this way supports research that contributes to understanding of environmental problems. One of the components of NSF's Global Geosciences initiative is research on how biological processes influence the chemical composition of the atmosphere in ways ultimately affecting climate and how, in turn, changing climate affects biological processes and systems.

(c) NSF supports only a few projects on policy options related to water resources. Included is the development of a national drought policy program and the impact of climate change due to greenhouse gas warming on water resources.

(d) The Tropical Oceans/Global Atmosphere Program, the Global Tropospheric Chemistry Program, the Global Ocean Flux Study, the World Ocean Circulation Experiment, and the National Ozone Expedition in the Antarctic all involve international participation. These programs are part of the Global Geosciences initiative.

PRIORITIES

Question: Please indicate your current agency priorities and where, among these priorities, the problems of the greenhouse effect, global climate change, and stratospheric ozone depletion appear.

Answer: The Foundation's current priorities are focused on activities that contribute to national economic competitiveness and innovation, improve the tools needed for research, develop the science and engineering personnel of the future, and recognize areas of exceptional scientific promise. Global Geosciences is one of three areas of exceptional scientific promise that NSF proposed as a major budget initiative in FY 1987 and which the Congress has endorsed. It is the highest priority of the NSF Geosciences Directorate; it involves the Biological, Behavioral, and Social Sciences Directorate; and it represents a substantial basic research effort. In addition, there is a great deal of support for relatively small scale research in the Foundation's core disciplinary programs which is related to greenhouse, climate, and ozone problems.

MAJOR THRUST

Question: Does your agency have a major thrust or focus with respect to greenhouse, climate change, and stratospheric ozone issues? What are the priorities within you greenhouse, climate change, and stratospheric ozone programs? Are these multi-year efforts? When do you anticipate completing each of these projects?

Answer: Although NSF does not have defined programmatic thrusts on greenhouse, climate change, and stratospheric ozone topics per se, NSF support of basic research through the Geosciences Directorate and the Division of Biotic Systems and Resources provides the fundamental underpinning for studies in those areas. The U.S. Antarctic Program, managed by NSF, plays a special role in support of research and provision of logistics for study of ozone depletion over Antarctica. The Global Geosciences program is a long term commitment that will be supported by NSF well into the coming decade.

PLANNING

Question: The scientific evidence demonstrates that we are already committed to a 2°C increase in global average temperature, and that the effects of global warming may be manifested as early as the next several decades. How have these finds be factored into your planning? How does the magnitude and timing of these changes affect your projects?

Answer: Since the NSF role is support of basic research, its planning is driven by science questions. The Foundation, in response to recommendations of the appropriate scientific communities, has joined with those communities to plan a set of research programs aimed at providing fundamental understanding of the earth's physical systems. That new knowledge will be helpful in responding to environmental issues. The Foundation's Global Sciences initiative, for example, was developed within the context of environmental issues. Obtaining a clear and accurate understanding of possible global climate change will continue to be a high priority research topic.

EXPENDITURES

Question: Please provide a detailed accounting on the following, including a breakdown by specific offices/laboratories and projects for each fiscal year.

(A) For greenhouse effect
  (1) Expenditures in FY 86.
  (2) Appropriations and expected expenditures in FY 87.
  (3) Budget request in FY 88.

(B) For climate change
  (1) Expenditures in FY 86.
  (2) Appropriations and expected expenditures in FY 87.
  (3) Budget request in FY 88.

(C) For stratospheric ozone depletion
  (1) Expenditures in FY 86.
  (2) Appropriations and expected expenditures in FY 87.
  (3) Budget request in FY 88.

Answer: NSF provided approximately $17 million for research on the changing global environment in FY 1986. An additional $25 million was provided for all other areas of climate research. Although only a portion of these funds directly bears on the greenhouse effect, climate change, and stratospheric ozone depletion, it is these programs which provide the scientific underpinning necessary to understand these phenomena.

Specific expenditures in FY 1986 for studies of greenhouse gases and associated climate change were $5.5 million and investigations of stratospheric ozone layer changes were $4.15 million.

In FY 1987 the Global Geosciences initiative has been allocated $35 million, and in FY 1988 $64 million has been requested in order to continue to support basic research on the changing global environment. There will also be continued growth in the research areas of greenhouse gases and associated climate change and stratospheric ozone. Actual expenditures in FY 1987 and FY 1988 will depend on the quality and quantity of meritorious proposals received from the academic and private-sector research communities.

COORDINATION

Question: Please describe how your agency's efforts are coordinated with those of other federal agencies and the scientific community.

Answer: NSF efforts are coordinated with other Federal agencies and the scientific community through a variety of mechanisms. Coordination takes place through discussion of plans at meetings of: committees such as the Subcommittee on Atmospheric Research (SAR), the National Climate Program Policy Board, and the Ocean Principals Group; NSF Advisory Committees that are comprised of representatives of the scientific community; scientific organizations at the national and international levels; and interactions between NSF staff and the scientific community. Close cooperation among NSF and the other agencies is essential to the success of studies of the earth. In the typical role that NSF plays in its support of fundamental science, some of the ideas are picked up and expanded upon by mission agencies. This is particularly true of the Environmental Protection Agency.

PRIORITY RESEARCH NEEDS

Question: What do you see as the five highest priority research needs in the area of greenhouse effect, global climate change, and stratospheric ozone depletion?

Answer: The highest priority research needs in the area of greenhouse effects, global climate change, and stratospheric ozone depletion are to: (1) continue and augment the basic research support for the Global Geosciences initiative, (2) acquire new data through the development and deployment of new instrumentation, (3) develop and validate models of these research areas, (4) conduct impact assessments, and (5) improve the human resources necessary to carry out future programs.

SUBCOMMITTEE RECESS

The chairman informs me that the subcommittee will stand in recess until tomorrow at 10 a.m., March 13, in this same room, when we will continue the hearing on the National Science Foundation. We stand in recess.

[Whereupon, at 11:50 a.m., Thursday, March 12, the subcommittee was recessed to reconvene at 10 a.m., Friday, March 13.]

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT-INDEPENDENT AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1988

FRIDAY, MARCH 13, 1987

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10 a.m. in room SD–124, Dirksen Senate Office Building, Hon. William Proxmire (chairman) presiding.

Present: Senators Proxmire, Lautenberg, Domenici, and Grassley.

NATIONAL SCIENCE FOUNDATION

STATEMENT OF ERICH BLOCH, DIRECTOR

ACCOMPANIED BY:
ROLAND W. SCHMITT, CHAIRMAN, NATIONAL SCIENCE BOARD
JOHN MOORE, DEPUTY DIRECTOR, NSF
RICHARD NICHOLSON, ASSISTANT DIRECTOR FOR MATHEMATICAL AND PHYSICAL SCIENCES

Senator PROXMIRE. The subcommittee will come to order. Our first witness today will be Mr. Erich Bloch, Director of the National Science Foundation, who will continue to respond to our questions regarding the Foundation's 1988 budget request.

SUPERCOMPUTER CENTER COMMITMENTS

Mr. Bloch, as I indicated in yesterday's opening statement, I am concerned about the possibility of the Foundation committing itself to the creation of new centers without adequate resources to sustain those centers.

Let me give you an illustration of what I mean. On February 25, Professor William Lester, who is chairman of the Supercomputer Centers Subcommittee, testified before the House authorizing committee, and here is what he said, and I quote:

> The cooperative agreements that were developed for the centers contained funding levels that have not been maintained for a variety of reasons. It is not my intention to discuss these but to call attention to the fact that the funds expected on the basis of agreements have not been fulfilled. As a consequence, various aspects of different centers' programs have had to go slowly.

70-539 - 87 - 15

He went on to say:

A critical issue for the continued development and role of the centers, if they are to have a unique role in the development of supercomputing in this country, is that they be maintained at the cutting edge of technology. In their brief history, none of the centers has sustained that status, none of the centers.

It is important that the budgets for the coming year and successive years be established at least at the levels presented in the cooperative agreements and that previous unfulfilled commitments be met.

Would you tell the subcommittee if this is an accurate statement and, if so, why the Foundation's commitment to these centers has not been met?

Mr. BLOCH. I have a lot of problems with that particular statement, Mr. Chairman. First of all, I will say that the centers have been maintained at the cutting edge of technology. The installation of a 3090–400 in Cornell is certainly the latest machine from IBM. The installation in the San Diego Center, and also in Illinois of the XMP–48, is the latest machine that Cray has available with the exception of Cray II, from which we are buying time.

We have a plan in place to update these centers. One machine which is not even finished yet and that has been delayed is going to be installed in Princeton, and the only reason why it hasn't been installed is the fact that the manufacturer has had some delays in his schedule.

So I certainly take exception with that particular statement. Let me say, however, in all fairness, yes, we have probably spent $4 million less in 1987 on these centers than we had originally planned, but that is in light of the fact that we also did not get our total budget through Congress.

STATUS OF CENTERS

If I may talk about the centers in general and your concern and get away from the computing centers, let me pose the question, where are we today? First of all, the centers are not a new idea. The Foundation has had centers in existence since 1975. Today, we have 38 centers in existence, and in 1987 we spent a total of $110 million on them. That is 7 percent of our budget, roughly speaking.

In 1988, if we are going to have something like 70 centers and a $162 million budget, that would be 9 percent of NSF's total request. Let me make the point: centers come in small increments. A center of $2 million, $3 million, is what we are talking about. This is not like some of the other centers that are in place like in astronomy or in nuclear physics or where they come in much bigger chunks.

So we have, essentially, the quantity of centers that we can establish from year to year as they are available, and we can adjust that. If we don't have enough money, we won't establish new centers. So that is our variable, and that is really where our control mechanism is.

Senator PROXMIRE. I understand that, but the point made by Professor Lester is that you are doing this without the likelihood that you are going to have adequate resources to sustain those centers. In the letter that he wrote on February 3, he said:

The centers are very new and not at all mature. Funding is below adequate levels, and the centers feel that the NSF has reneged on the cooperative agreements.

He goes on to say:

We believe that this can only lead eventually to the dissolution of centers. If funds originally earmarked to the centers are returned to the directorates with the possibilities for alternative uses for those funds, there is little basis, if any, to think that they will end up back at the centers.

Mr. BLOCH. First of all, we are committed to these five centers, as I have stated often before. We established them with the idea that we will keep them at the leading edge of technology. There are always more requests for new or additional hardware and graphics, which is understandable from their viewpoint.

We have got to look at it from our viewpoint, also. The dollars that we have available are devoted to keeping those centers at the leading edge, and they will be at the leading edge. That is the purpose.

Senator PROXMIRE. I beg your pardon. I should have asked you for your statement to begin with. I didn't do that. I will return to question you and Mr. Bloch in a minute. But first, would you like to make an opening statement, sir?

STATEMENT OF DR. SCHMITT

Dr. SCHMITT. Thank you, sir. I did prepare remarks which I propose be submitted for the record. What I would like to do, with your permission, is to make a few additional points that are related to some of the issues that I understand arose yesterday.

In doing this, I want to speak not only as Chairman of the National Science Board, but as a person engaged in industrial R&D for some 36 years, in positions ranging all the way from bench scientist to chief scientist at General Electric Co. I want to assure you that from that perspective, one of the principal competitive advantages that the United States has had and that, if we renew our commitment to it, we will continue to have, is a strong academic research system that is well linked to industry. I want to emphasize that this link is important both to established industries and to newly emerging entrepreneurial enterprises.

JUDGING THE SUCCESS OF INVESTMENTS IN R&D

How does one judge the success of investments in R&D? That is a subject of interest. With respect to federal investments, Mr. Chairman, the answer is the same answer I have given to the chairman of GE over the years regarding corporate investments: Very simply, by the results of the total effort. One by one, research programs are, by nature, risky, and in the beginning can only be judged by the quality of the ideas and the quality of the people.

To ask a research director to tell you ahead of time which particular projects are sure to pay off is like asking a salesman to guarantee you ahead of time which customers are going to buy.

In both cases, you have got to use judgment, focusing on the best prospects but with the full knowledge that some efforts will succeed

greatly, some barely and some will fail. But in both cases, it is the total result that should and must be judged. Federal investments in academic R&D should and have produced two things of immense value: high-quality scientific and technical people and new knowledge of significant importance.

By these measures, the U.S. system has been successful and productive. I want to concentrate on just one part of that; namely, the results produced that are valued in industry. I choose industry, obviously, because I am most acquainted with it. I want to say at the same time that the academic system produces for other sectors as well, for civilian government and defense and the like.

VALUE OF UNIVERSITY RESEARCH TO INDUSTRY

But let me concentrate on industry. First there are people. Both at the graduate and first-degree level, the United States produces new human resources that are needed to keep the industrial sector of the country healthy. That part of the contribution is recognized.

It is not as well understood that the academic research system produces new knowledge of direct value to industry. I could give you many examples from my own years of experience, and I have prepared a short list that I think has been given to you, Mr. Chairman, that I put together fairly quickly several months ago on short notice based on that personal knowledge and on two or three phone calls. The point is that it isn't hard to produce many, many examples.

Let me drive home the point with one recent illustration. You may have read about a major new discovery about superconducting materials. Never mind exactly what these are this morning. Let's just say that today, these materials are used principally in medical diagnostic equipment and in high-energy particle accelerators.

As important as they are for these purposes, they would be much more widely used if it weren't necessary for them to function at very low temperatures, as low as minus 400 °F. Recently, new materials were discovered that raised the temperature at which these materials might be used, still quite low by daily standards, but scientifically significantly higher.

These new materials might very well increase the use of superconductors and at the very least they will reduce the cost of the present applications.

The reason for telling you this story is to illustrate the kind of breakthroughs that we get from time to time out of academic research. Also, as it turns out, two of the leading institutions in this research were supported in different ways by NSF funds. The University of Houston was supported with regular program funds for this project and the University of Alabama at Huntsville was able to participate through an imaginative use of the EPSCoR funds.

I would be happy to answer further questions, but the bottom line is that a very strong academic research system, well connected with industry, is an absolutely essential element in maintaining U.S. industrial

competitiveness. We have got to make sure that the problems and the weaknesses that have begun to appear in that system, and that Erich Bloch and I and others have talked about, are corrected and corrected quickly.

NEW CONCEPT OF S&T CENTERS

Then we have got to go further and update and strengthen the system. On that point, I would like to say something about the initiatives to establish new science and technology centers. One of our challenges is to improve the effectiveness of knowledge transfer from universities to industry without, however, diverting universities from their primary mission of basic research.

I believe that the concept of centers, which usually entail multidisciplinary programs, with both graduate and undergraduate student involvement, are ideal for speeding up that transfer. Why? The reason is that most industrial applications of science and technology are multidisciplinary. Industry has often had to tap various streams of separate basic disciplinary work and integrate them for particular ends.

To have these streams of disciplinary work coming together at the outset in an academic environment is going to speed up the whole process, in my view, both because of the kind of knowledge generated and the kind of students, both graduate and undergraduate, that are produced.

THE VALUE OF ACADEMIC RESEARCH TO INDUSTRY

Moreover, it is important that these multidisciplinary centers be an added element of NSF support, not merely a replacement of existing support. With all of my emphasis on the value of academic research to industry, you should ask, and I have no doubt you will: Why not let industry do it? There are two reasons for this. One, the time horizons and the levels of risk of academic basic research are a little too long and a little too high for industry. By combining research with the education process, you get an output of trained people that offsets and hedges the risks.

Second, basic research—and I think this is perhaps even more important—the basic research done in universities is available for the startup of new entrepreneurial businesses as well as for use by established businesses.

The strength of the entrepreneurial sector of the U.S. economy exceeds that of any other nation by far, and there is one very simple reason for it: the strength of academic research.

Put all the basic research in established industrial firms and you will get three bad things: Too little research, too few trained people; and too few new entrepreneurial startups.

INVESTING IN THE FUTURE

Finally, let me say that as your committee faces the difficult task of making budgetary tradeoffs, I would urge you to remember that with NSF's budget, you are dealing with an investment in the future and not with solving immediate problems of the day. Our ability to solve to-

day's problems depends on the wealth our economy produces from past investments.

The resources that you and your successors will have a few years from now to solve the urgent needs then depend on your own investments today. I realize it is a difficult tradeoff, but the best results, I truly believe, are produced by continuing strong investments in the future.

Thank you, Mr. Chairman.

[The statement follows:]

STATEMENT OF DR. ROLAND W. SCHMITT

Thank you Mr. Chairman. I appreciate the opportunity to add my comments to those of Mr. Bloch. My views on the issues before us are shaped by the two roles I fill-- one on the National Science Board, and the other in industry. From both perspectives, I see Federal support for research and education as essential-- both for national excellence and for competitiveness in the world economy.

In making our nation more competitive, Federal support of science and engineering research is absolutely vital. It helps insure a steady supply of young people educated in all the fields needed by technology-based industries. It helps supply the basic knowledge that makes possible new products and processes. Industry can meet many parts of the competitiveness challenge by itself, but in these two areas-- training and basic knowledge-- it depends on the excellence of our universities, which in turn depends in large part on government funding.

You've shown you understand this by your past support, so I'll make just a few remarks about important new themes in this budget.

The first is people. The nation has failed in recent years to attract enough of our best young people to science and engineering. We see this in declining enrollments, and in the rising proportion of foreign nationals in some of our most important science and engineering programs.

The problem is not with these foreign nationals. The fact that we are attracting them in large numbers says something very positive about our system. Many of them stay here, and we need them.

The problem is with people born in the U.S. We need to make careers in science and engineering more attractive to them. We have to provide the kind of incentives that will lead a growing share of bright and capable students into careers in science and engineering. We have to continue our efforts to make sure that nobody in our society gets discouraged from entering a career in science and engineering for reasons of sex, or race, or anything else not related to the ability to contribute. All this cannot be a one-shot effort. It requires long term programs, spread throughout the nation, and acting all the way up the line from the elementary school through the graduate school. The NSF is putting in place the programs to meet this challenge.

Let me add here a comment about the way these programs are managed. The Foundation is unique among Federal agencies in having a board that is actively involved in setting policy and in oversight. When the Foundation undertakes a new initiative, the Board makes sure mechanisms are set up to keep track of its accomplishment. We've done this for the special efforts of the Research Directorates, and we are doing the same thing in education.

Another major theme in this budget is "Centers". It's a reflection of the ways that science and engineering research are changing. Many of the most exciting opportunties require interdisciplinary approaches, large scale instrumentation, and group efforts. Many of the most promising research fields grow out of industrial challenges. The NSF has responded by placing more emphasis on centers. This is a good example of the way it is taking a leadership role in stimulating the changes that the university community needs to make.

But one should be clear about the nature of this change. It is a change in empahsis in the organization of research. But it is not a change in the basic mission of the NSF. It is not a shift from basic to applied research. For a long time, NSF has supported centers in such areas as astronomy and materials, and they have always been involved in basic research. The idea of industry-university linkage represented by the new centers is also not new. That linkage has traditionally been stronger in the U.S. than in other nations, and this has given us a competitive edge. The centers offer ways to make that linkage even stronger, and take even better advantage of it than we have in the past. But this does not change the basic mission of the NSF or the universities, or the basic principles of the national R&D partnership among industry, universities and the government.

Mr. Chairman, as the nation looks for ways to improve its economic competitiveness, it must recognize that education and research are the basis of competitveness. In the short term, policy measures such as changes in the interest rates or exchange rates may have more immediate impact. But in the longer term, out living standard depends on our productivity. And our productivity depends overwhelmingly on having smart, well educated people who can create new ideas, and then turn them rapidly and efficiently into new products and new processes.

So the dollars supporting the Foundation's programs are investments in the nation's future as a winner in world economic competition. They deserve your full support.

Thank you.

Senator PROXMIRE. Thank you, Dr. Schmitt. It is a fine statement. The trouble is, it doesn't square with reality. You say the strength of our entrepreneurial sector exceeds that of any nation anywhere. You talk about the strength of our universities and the excellence of our universities and the cooperation of the universities with the government in terms of funding and science and so forth.

The fact is, we are getting the pants beat off us. We are losing. Our competitiveness has never been worse. Our advance balance of payments is a scandal. Japan and Germany are knocking our socks off. We are spending a lot of money for research. Why aren't we getting any results?

IMPACT OF RESEARCH RESULTS

Dr. SCHMITT. Let me give you some results in your own state regarding medical diagnostic imaging, Mr. Chairman, where we are, in fact, beating the competition. Based on technology originating in this country, first in an academic environment and further carried out by industry, we now have established in Milwaukee, Wis., the leading business in the world in CAT scans and magnetic resonance imaging.

It is a clear-cut case where our research and technical expertise is providing us with an international leadership position. I can cite other examples, in jet engines, in engineering plastics, in major appliances. In none of those cases are the Japanese beating us.

Senator PROXMIRE. You can certainly cite the cases. I can tell you about Cray research, now.

Dr. SCHMITT. That is another good example.

Senator PROXMIRE. That is a man who grew up in Chippewa Falls; was the son of an engineer; went to the University of Minnesota; got all his education there. He brought in people that he knew that were trained in the Midwest, and they have got the fastest computer in the world. They beat the tail off IBM and the Japanese.

There are examples of that, sure, but I think overall, by and large, we just aren't making it. This advanced balance of trade is based, not entirely, but in large part, on the fact that we don't apply the breakthroughs we make in science effectively in business to compete effectively.

Dr. SCHMITT. In many areas, that is true, and you are absolutely, 100 percent right on that. My main point is this: that the part of the system that we have going well today; that is, succeeding today, is exactly the part we are dealing with in this budget.

The whole issue of where we have failed is in another domain that would certainly be appropriate to go into and discuss at great length. But the thing we are dealing with today is exactly the part of the U.S. economy that has succeeded dramatically and is sustaining our competitive advantage where we still have it.

Senator PROXMIRE. Thank you, sir. I am going to address my questions to Mr. Bloch, but if you would like to comment, you step right in.

Dr. SCHMITT. Thank you, Mr. Chairman.

Senator PROXMIRE. I am going to ask both you gentlemen to keep your responses as concise as possible, because I have a lot of questions I would like to ask, and we have limited time.

MATHEMATICAL SCIENCES DIVISION

Mr. Bloch, you are requesting $67.8 million for fiscal 1988 for the Mathematical Sciences Division. That is an increase of 13 percent over the current budget, yet the number of awards will increase by only 2 percent. So a large part of the increase in funds requested is due to the estimated growth and average award size, which will escalate 22 percent between 1986 and 1988. How do you account for this increase in the average award size?

Mr. BLOCH. The average award size has been a concern of ours. When we looked at it a year ago and even before that, it became very clear that in today's world—and I will describe the world in one second, that doesn't go very far, and by that I mean the following: The cost of research is increasing because of the need of instrumentration and the cost of instrumentation.

That is one of the main areas. When we analyze an average size grant, we are only supporting on the average, in many of the divisions, 0.1 graduate student, which is not enough. That doesn't fulfill our educational responsibilities and it doesn't help the research. I think we should increase the size of the awards so that we get better quality research and, at the same time, support our education needs.

Senator PROXMIRE. Last year you estimated that the average mathematical sciences award size would be $50,678 for fiscal 1987. This year's justification shows you have reduced the assessment to $45,000. How do you account for your initial estimate being so far off target?

Mr. BLOCH. I'm not sure that I know what number you are talking about, sir. We will be glad to look at it and answer for the record.

Senator PROXMIRE. I am talking about the average mathematical sciences award size.

Mr. BLOCH. In mathematics?

Senator PROXMIRE. Mathematics; yes, sir.

Mr. BLOCH. Mathematics.

It seems to me that it is up about 10 percent between 1986 and 1987. That is what our book shows. I can refer you to 2D4.

Senator PROXMIRE. That just seems, offhand, to be a pretty big miss. It is up 10 percent. I see what you are talking about. It is up 10 percent.

Mr. BLOCH. It is up 10 percent.

Senator PROXMIRE. The initial estimate would be up 20 percent, so you missed that by one-half.

Mr. BLOCH. That could well be. The only thing you have to realize is that we are caught between the numbers and the size of awards, but there are strong guidelines out to the program officers that we are looking at the size of the award to see if it is adequate or not, rather than the number of awards, if the number of awards increases. I think that is the right approach to life.

MATERIALS RESEARCH LABORATORIES

Senator PROXMIRE. You are requesting $119 million for materials research in fiscal 1988, an increase of about 10 percent above your current level. That year's justification, as I say, indicates that you plan to phase out one materials research lab, reducing the total to nine.

Mr. BLOCH. Right.

Senator PROXMIRE. On the other hand, you told the House last year that you planned to be supporting 12 laboratories by the end of 1987. Can you explain the apparent discrepancy?

Mr. BLOCH. Yes; let me ask Dr. Nicholson to talk to this problem. It is in his area.

Rich?

Senator PROXMIRE. Dr. Nicholson?

Dr. NICHOLSON. Last year, when we said we were going to phase out 2, we had 14 at that time, and that was in the context of the requested 1987 budget.

The final appropriation was less than that, and so in our current plan, we proposed phasing out 2 additional centers—that will carry the number from 14 down to 10 by the end of 1988.

In fact, it appears as though we are going to recommend to the National Science Board that one additional one be phased out, so the number will probably be nine at the end of 1988.

MATERIALS RESEARCH GROUPS

Senator PROXMIRE. You are requesting about $8 million for materials research groups in 1988. That is an increase of about one-third over your current budget. You indicate in your justifications that the program, and I quote, "plays a key role in advancing the field."

Could you elaborate on that statement? What advances are attributable to these materials research groups?

Mr. BLOCH. Again, let me ask Dr. Nicholson to address it, and then I have something to say.

Senator PROXMIRE. Go ahead, Dr. Nicholson.

Dr. NICHOLSON. We started this program a couple of years ago, based on advice from that research community, and materials research is an inherently interdisciplinary activity. It involves cooperation between physicists, chemists, engineers, and the like. For a number of years, we had had these large research laboratories, the 14 labs we were just talking about, and then we had the individual investigator mode supporting that kind of research, but we had nothing in between.

The scale of these materials research laboratories [MRL's] is very large, as you can guess, since there are only about 12 of them right now.

Based on the advice that the community gave us—namely, that we needed some mode of supporting collaborative research at an intermediate scale; that is, intermediate between individual investigator and the large multithrusted materials research laboratory—we started this program called Materials Research Group, which is intermediate in scale.

Senator PROXMIRE. Wait a minute. My question is to ask you what advances are attributable to the materials research groups. Can you tell us any advances?

Dr. NICHOLSON. I think, to be honest, it is a new enough activity that I don't know of any advances. We just formed the first ones 2 years ago.

Senator PROXMIRE. What are the perspectives? Mr. Bloch indicated in his justifications that the program plays a key role in advancing the field. I want to know what advances you had in mind, what they are working on.

Dr. NICHOLSON. They are focused on areas that require collaboration and expensive equipment. So, for example, there are ones focused on hetereogenous catalysis. There are ones focused on thin films. There are ones focused on interphaseal sciences. These are all areas of great technological as well as scientific interest and importance.

We are providing these groups with the kinds of equipment, which are very expensive in some cases, so that they can share among the participants in their groups.

Senator PROXMIRE. Mr. Bloch, I beg your pardon. Mr. Bloch, of the $8 million——

Mr. BLOCH. May I just comment?

Senator PROXMIRE. I beg your pardon. Of course, you did ask.

Mr. BLOCH. Thank you, Mr. Chairman. You hit on groups and centers in the same question. I am glad you did, because I want to make a general comment that has to do with these things.

We have three ways of doing research. Our predominant form of supporting research are grants to individuals. The other two that you just heard about are centers and groups, and each has its place. Obviously, the individual grant is very important. It focuses on the particular subject and the particular discipline in a particular area by an individual, with some help from students.

The groups are becoming very important because of what Dr. Nicholson just said. Instrumentation has to be shared because it is very expensive. Centers are becoming very important because of the contributions to multidisciplinary research require much greater support and industrial involvement.

Between those three there has to be a balance. We are very acutely aware that this is our responsibility, to be sure that that balance is right. There is no good number for it; it changes from year to year.

I know that you have heard much about that balance, and I just wanted to assure you that we have that in mind, also.

NEW MATERIALS RESEARCH GROUPS

Senator PROXMIRE. Of the $8 million, you are requesting $2 million in fiscal year 1988 for the initiation of 3 to 4 new materials research groups, bringing the total to be supported in 1988 to 14 or 15.

Can you tell us how much the Foundation plans to spend in support of these new groups over the next 5 years?

Dr. NICHOLSON. We don't have a very precise target for the reason that Mr. Bloch just stated: it is a question of balance and achieving the right balance. It is our estimate, based on the number of proposals we could receive each year, the quality of them, and the character of that field, we would expect something like 25 in a steady state.

Senator PROXMIRE. The question is, how much will it cost to support these new groups over the next 5 years?

Dr. NICHOLSON. The level of support for a group is typically of the order of $750,000.

Senator PROXMIRE. Are you talking about $20 to $25 million?

Dr. NICHOLSON. About $18 to $20 million, sir.

Senator PROXMIRE. Are you committed to fully supporting these groups if the Congress does not double the National Science Foundation's budget over the next 5 years?

Mr. BLOCH. Can I take that question, Mr. Chairman?

Senator PROXMIRE. Sure.

Mr. BLOCH. Our budget request for 1988 assumes that in 1988 we will get what we are asking for. Also, these groups, as well as centers, come in small chunks, $750,000 for a group, on the average; about $3 or $4 million for a center once they are firmly established. The number of centers will depend very heavily on our final budget, not only in 1988, but over the next 5 years.

We are not establishing all the groups or centers at the same time. So we have a good variable and a way of positioning ourselves in line with reality.

Senator PROXMIRE. I am glad to hear that you say that. I beg your pardon.

Dr. NICHOLSON. I hope we get the 1988 request.

Senator PROXMIRE. I am glad you state in your justifications, and I quote: "Increased industrial participation will be sought for all centers and groups."

Mr. BLOCH. Right.

INDUSTRIAL PARTICIPATION IN CENTERS

Senator PROXMIRE. Let me ask. What goals have you set for increased industrial participation and what steps are you taking to encourage that participation?

Mr. BLOCH. Right. That is a very good question, Mr. Chairman. Let me tell you what our experience has been.

In the centers that have been focused on very heavily, such as the engineering research centers, industry has contributed about $1 for every dollar invested by the federal government.

I want to correct myself. The contributions come from both industries and the state. There are many state dollars involved. We have not set a target. We have not set a one-to-one match. That was not our objective. In the advanced scientific computer centers [ASCC's], we pay about 60 cents on the dollar, about the same ratio as in the centers.

But we did not set targets, and the reason why we didn't set targets, and I think it is very important, is that we did not want to put a rigid system in place. We would learn from our experience and then move forward from that, and I think we will continue that method with the science centers.

We have been very gratified with the response so far. Let me also give you another number. If you look at the total industry matching of NSF funds, it amounts to approximately $300 million. So that is not an insignificant number.

ENGINEERING RESEARCH CENTERS

Senator PROXMIRE. You are requesting $48 million for engineering research centers in fiscal year 1988. That is an increase of 60 percent, I repeat, 60 percent above the current budget of $30 million. These funds would support 21 such centers by the end of the next fiscal year. To review the bidding, in 1985, the first six centers were started; in 1986, another five were added; this year, you are funding five more; in 1988, you plan to support another five.

Last year, you told the House that if you did not get your full request you would not partially fund new centers, but rather, would fully fund fewer centers. Doctor Suh said that. Well, your 1987 budget request of $35 million was cut back to $30 million, yet you report this year you will add five centers in 1987 rather than the four you initially planned to add. Why didn't you reduce the number of centers when you were cut?

Mr. BLOCH. Life is catching up with us. Let me tell you what I mean by that statement. We are not going to establish, this year, in 1987, five centers. That was our original plan; however, we are going to establish three.

So that gets us to 14 at the end of 1987. The reason is that we have just had a long discussion on that subject with the House Appropriations Committee which asked that we fund for 12 months, every center that we are establishing and not just fund up to the fiscal year, as we did in 1986. So that is why I say, life is catching up with us.

I think if you look at us in the beginning of 1988, we will have 14 centers in place and not 16 centers.

Senator PROXMIRE. Frankly, your past ability to fund more centers than initially planned with less money than initially requested makes me think this might be a good place to cut your budget. Then you could fund a lot more. [Laughter.]

Last year, a $7 million increase brought us five new centers. Why do you need an $18 million increase this year for five new centers?

Mr. BLOCH. First of all, centers come in various sizes, depending on the discipline. We were just lucky last year that we had a few centers that needed fewer dollars. Also, we only funded a partial year last year. That is why I said life is catching up with us.

Senator PROXMIRE. Can you tell us how much the Foundation plans to spend in support of these five new centers over the next 5 years?

Mr. BLOCH. Roughly, once they reach maturity, which is usually after 2 or 3 years, they average somewhere between $3 and $4 million per year.

Senator PROXMIRE. So what would that mean over the next 5 years? Can you do the arithmetic for us?

Mr. BLOCH. In the fifth year, if we had 25 centers, we would essentially need $100 million for 25 centers. That is a high number, because I took the $4 million per center to arrive at that figure.

ECONOMICS RESEARCH

Senator PROXMIRE. You are requesting a total of $13,024,000 in 1988 for economics research. Although a lot of the work you are supporting with these dollars is studies of the economic consequences of public sector growth and international economic competitiveness, it is clearly useful. I would like to refer to one study that seems questionable. You are spending over $90,000 on the relationship between economic change in Britain during the first half of the 19th century and changes in the health status.

The study is supposed to help us understand the process of economic development and its impacts on economic well-being and health status. It would seem to me to be very difficult to apply findings based on the 19th century experience in Britain to today's world.

Could you elaborate on the benefits of that sort of a project?

Mr. BLOCH. Luckily, our Deputy Director, John Moore, is an economist, so why don't I ask him to address that question. [Laughter.]

Dr. MOORE. Mr. Chairman, that particular variable—namely, looking at height as an indicator of health—is something that is of considerable methodological interest in understanding the impact of economic development on the well-being of a population. So there is a great deal of methodological interest in this particular study.

It also provides an opportunity to examine the course of development of a very important event—namely, the industrial revolution—on the general well-being of a population.

Senator PROXMIRE. This is why you went back to the first half of the 19th century, 150 years ago, to take a look at it?

Dr. MOORE. Sure.

Senator PROXMIRE. Why wouldn't it be better to have a study that is more up-to-date in this country?

Dr. MOORE. This happens to be a very unique data set that coincides with a very unique period of history that can be separated out and provide some special kinds of insights into this problem.

Senator PROXMIRE. It would make a great humanities history project, but I am not so sure about its application.

LAW AND SOCIAL SCIENCES PROGRAM

You are requesting $2 million, roughly, for your law and social sciences program, an increase of 14 percent over your current budget. Among the activities to be supported is large-scale data collection in the area of Supreme Court decision-making. The way the Supreme Court reaches its decisions has been a matter of intense scrutiny by the legal profession over the years.

For example, the Harvard Annual Law Review devotes its positions to the preceeding year's Supreme Court decisions. Tell me how much you plan to spend this year and how much you plan to spend in this area.

Mr. BLOCH. Could I ask that that be submitted for the record, Mr. Chairman?

Senator PROXMIRE. All right.

Mr. BLOCH. Thank you.

[The information follows:]

U.S. SUPREME COURT JUDICIAL DATA BASE

The scientific study of the judicial process in the United States began several decades ago with the pioneering work of scholars like J. Willard Hurst (University of Wisconsin), Karl Llewellyn (University of Chicago), and E. Adamson Hoebel (University of Minnesota). In the early days of this movement, scholars were quite concerned about focusing their attention on the law-in-action in addition to the traditional interest in law-on-the-books. The key characteristic of this approach was its belief in examining theories, abstract concepts, and hypotheses about the role of law, courts, and legal processes in terms of their actual operations.

This commitment to scientific inquiry on law is being pursued through the U.S. Supreme Court judicial data base project. The project is designed to provide systematic, reliable, and standardized data on the operations of the Supreme Court. Beginning with the decisions of the Warren and Burger Courts, the data base contains extensive information on the kinds of cases that come before the Court, the types of decisions being made by the Court, the voting behavior and opinions of individual justices, and the nature of the parties engaged in litigation before the Court. This data set is intended as a resource for a wide-ranging group of scientists and legal scholars interested in analyzing a variety of questions about the public's use of law and the workings of the Court. In other fields, scholars often have a wealth of readily accessible and standardized data on which to draw. Until the development of this data set, judicial scholars painstakingly compiled their own data de novo from court records. Not only was this expensive, but it meant that there was little sustained attention to developing comparable measures of theoretical and practical significance.

By the end of fiscal year 1988, the National Science Foundation anticipates expending approximately $430,000 on the development and archiving of this data set in a form appropriate for use by analysts from a number of research perspectives. With this funding, NSF will have supported the creation of a data base that is unique, heretofore unavailable, intended to reduce the cost and redundancy of research, and compatible with the highest standards of reliability in science.

GEOSCIENCES

Senator PROXMIRE. You are asking for $330 million for research in the geosciences this year, an increase of 15.8 percent over the current year. In 1987, you were required by the Congress to fully fund ocean sciences, taking your cuts from atmospheric, Earth, and Arctic programs, instead. This year, you asked for an 11.8-percent increase for ocean

sciences, which compares to increases of 27 percent in Earth sciences and almost 30 percent in the Arctic research program.

Is it fair to conclude that you are trying to make up for the cuts you had to take in your 1987 Earth sciences and Arctic research budgets by asking for bigger increases in those budgets in 1988?

Mr. BLOCH. I wouldn't quite characterize it that way, but let me say that this year—1987, we were caught, first of all, by not getting full funding for our request, and also by the freeze which Congress imposed in certain areas. Therefore, ocean sciences had to be shortchanged. There is no doubt that we are making up for some of that. I'm sorry.

Senator PROXMIRE. Before I yield to Senator Domenici, let me ask you one other question.

SCIENTIFIC, TECHNOLOGICAL, AND INTERNATIONAL AFFAIRS

You are requesting $51 million for scientific technological and international affairs, a 16.8-percent increase over the current year. In years past, you used to fund productivity improvement research through this directorate. That seems to me to be a very, very timely and appropriate area for us to study since productivity is at the heart of competitiveness. But you cut this out entirely last year and zeroed it out this year, as well.

Since the major planning of your NSF growth form is economic competitiveness, I wonder why you no longer will do productivity research, which is at the heart of competitiveness.

Mr. BLOCH. I am not so sure that we are not doing any productivity research at all. I will look into that, and you might have a very good point. We will come back to you on that.

At the same time, what you saw at one time in this particular department or in this particular directorate has been transferred so that you don't find it in there. It is not necessarily an indication that it has been taken out altogether. That is what I wanted to point out. We will give you an answer.

Senator PROXMIRE. I would like to proceed with that.

Mr. BLOCH. We will give you a trace of that for the record. Thank you.

[The information follows:]

PRODUCTIVITY RESEARCH

In the fiscal year 1986 budget to Congress, the Productivity Improvement Research Program was zeroed out as part of an international NSF reorganization. Productivity improvement research projects were then distributed to areas at NSF with relevant technical expertise; for example, engineering, policy research and analysis, and social and economic sciences. Some multidisciplinary and evaluation projects were kept in the Division of Industrial Science and Technological Innovation [ISTI].

The fiscal year 1986 obligation amount of $280,000 displayed in the fiscal year 1988 budget to Congress covered the final increment of funding for those projects, including a conference on international cooperation and competition. Further research in this area will be focused on projects related to U.S. economic competitiveness.

Senator PROXMIRE. All right.
Senator Domenici?
Senator DOMENICI. Thank you very much, Mr. Chairman.

VERY LARGE BASELINE ARRAY

Mr. Bloch, I want to discuss an issue that relates to astronomy and to the very large baseline array in New Mexico. First, I want to compliment you on your proposal for astronomy in the budget this year. I am pleased to note that NSF's request totals $92.6 million, which is slightly over 10 percent more than in 1987. Of this amount, you have requested $11.9 million for the very large baseline array, a radio telescope network headquartered in Socorro, N. Mex.

I think you remember that in the budget last year the request stretched the program out substantially. Congress did not agree. We supported an increased level of funding for 1987 with the specific indication that we would not stretch it out as long, but more precisely, to support procurement of two antennae per year.

That is one way of measuring when we will finish the very large baseline array. Now, it appears to me that even though the administration requests a doubling of the overall NSF budget in a 5-year span, unless I am reading this incorrectly, your increases for the very large base array seem to be annual increases equivalent to the rate of inflation. Is that the case? If so, will your request for the VLBA stay on the two antennae per year schedule?

I wonder if I have analyzed it correctly, and if I have, why is that your recommendation?

Mr. BLOCH. First of all, let me say that in 1987, we are spending $11.4 million on the VLBA. As you know, four antennae have been ordered; two of them are being ordered this year. That makes a total of six; and then we are planning two per year. I can't assume that the doubling of our budget is something that can be counted on from year to year.

We just submitted our authorization bill to Congress. If that passes, then we will look at all of these programs. The VLBA request is on the basis that our increases are what they normally are, and we made this decision to keep this particular program flat a year.

If our request in 1988 and for the subsequent 5 years is being honored and met by Congress, obviously, we are going to implement change.

Senator DOMENICI. Mr. Bloch, let me say that your responses are normally impeccable and rational, but in this respect, if I read you right, you are saying that even if you get your entire budget, which you are skeptical of and worried about, and rightly so, you don't have any more money than inflation for the very large baseline array in the budget request.

Mr. BLOCH. No; I was saying two things: first of all, we submitted a 1988 appropriation bill. We are talking about only 1 year. With the increase in the 1988 appropriation bill, this is what we can afford for

the VLBA—two antennae. In addition, fiscal year 1989 is the year where operating costs for the VLBA are really coming into play.

So if you look at the total VLBA costs in 1989, 1990, and 1991, you will see some other dollars going into this. We are talking in fiscal year 1988 about procurement of antennae.

Senator DOMENICI. I guess just being very, very forthright, I didn't agree with our chairman yesterday. I said that I was going to try to get the full funding increase for NSF in spite of tight budgets. I hope you understand that with reference to this one project in astronomy, it doesn't make me terribly enthusiastic about the situation when I am committed to that and I don't see any enhancement above inflation for the very long baseline array.

But I don't expect you to comment on that. Obviously, we will have to do what we have to do. One last question with your permission, Mr. Chairman, and I will submit the rest of my questions in writing.

Senator PROXMIRE. Go ahead.

TECHNOLOGY TRANSFER

Senator DOMENICI. I would like to talk with Dr. Schmitt.

Doctor, I note that the issue of technology transfer has finally reached the highest level of the executive branch of government. For the first time, at least to my knowledge, the President, in his State of the Union Address and in the attendant documents, recognizes unequivocally that this country has a very serious problem in moving scientific knowledge to useful application. Maybe technology transfer is even better described as science transfer.

We have a very difficult problem with that in our country any way you look at it, and this President did say that he was issuing an executive order with reference to technology transfer. Having said those laudatory words, and having worked on this for 8 years, I don't believe executive orders alone are going to cause technology transfer.

I believe we have to find new models, new ways to have knowledge that is accumulated for one purpose become more broadly usable. In my humble opinion, the most dramatic example is the national labs.

If you look at their charters, for the most part, they have done a magnificent job. I mean, when this country looks at Los Alamos Scientific Lab and labs like Livermore and Sandia, it is amazing. They have a long-standing charter, and it is very, very simple: Keep America's nuclear deterrent either superior to, or on par with, the Soviet Union. That is it.

The generals didn't tell them how, interestingly enough, and the military never gave them any direction. Most interestingly, if there is any part of the American military arsenal where the mission has been kept, it is that one; not so in a lot of others. Where the military directed with specificity, we are behind. Now there is a scurry of activity in areas of metals, metal penetration, and explosives. And locked in those labs, which are multidisciplinary and very, very different models themselves—one run by a university; one run by a private company;

and one nonprofit with just a little connection to AT&T—is a wealth of science.

Dr. SCHMITT. Yes.

Senator DOMENICI. Somehow or another, Doctor, the labs have to be involved. Our thinking in terms of getting technology transfer at a more enhanced level has to involve some way of capturing that knowledge and science and using it.

Do you agree with that?

Dr. SCHMITT. Yes; I do, Senator.

Senator DOMENICI. Is it a significant part of any major American scientific effort? Should the labs be part of any major American effort with reference to technology transfer?

Dr. SCHMITT. Are you asking the question with reference to the national labs in particular?

Senator DOMENICI. Yes, sir. There is more than that, but should that be?

ROLE OF NATIONAL LABS IN TECHNOLOGY TRANSFER

Dr. SCHMITT. Let me address that particular area and say that I agree with you wholeheartedly about the effectiveness of national laboratories with respect to the primary missions they have been given. The words "technology transfer" are a little tricky. They tend to imply that one does some research, it moves along, and somebody else takes it out and does something with it.

I refer to that as "chuckwagon technology." You dish it up, and serve it and say, "Come and get it." It doesn't work.

What is needed for effective technology transfer is having the user, the customer, the developer, and the researcher all linked together at the front end of the process. It isn't a linear process; it is a parallel process. I think that the way to get better technology transfer is to get the people who are doing the research linked to those who have needs on the front end of the programs.

That doesn't mean that they dictate to them in detail. I think your point there is absolutely correct. To try to tell a laboratory exactly what it has to do is not the right way to do it. But you have to convey to the laboratory what the goal is, what you need, and I think that is the single most important thing in getting effective technology transfer.

Incidentally, as expressed in my opening remarks, this is one of the reasons I am enthusiastic about the concept of these engineering research centers. They tend to put multidisciplinary pieces of work together in the academic environment, which is important because almost every industrial problem or opportunity is a multidisciplinary problem.

But going back to the national labs, if you want to use those as a prime source of technology for American industry, for other users, I think you have got to get industry and those labs linked more closely on the front end of those processes. It isn't going to work if you let the labs pursue what I call this chuckwagon technology game.

Senator DOMENICI. I tell you I like your word, "chuckwagon," but I am not yet convinced that your assumption of how the labs will ultimately be involved is correct. I believe that even the chuckwagon approach could be much more successful than it is.

Frankly, I believe you could even approach technology transfer from the standpoint of industry presenting a series of problems that confront them to the labs. They are already working on something, but just one thing is holding it from becoming operative. I think that is an area that we are exploring now with some success; some American industries are already going to the labs for 1- and 2-day seminars saying, "Here is what we are working on, and there is this fly in the ointment," or "We don't know how to do this." And it is amazing that the labs have already done it, but nobody knew it because it is a physics issue or a chemistry issue or a basic science issue.

So I don't think we are going to achieve technology transfer in any perfect or singular manner, but I laud you for pushing us to do it better.

EVIDENCE THAT CENTERS ARE WORKING

We now want to go from engineering centers to centers of basic science and technology as part of this new NSF approach to more basic and multidisciplinary research than engineering might permit. But let me ask about the centers themselves. What evidence do we have that they are working?

Dr. SCHMITT. Are you addressing that question to me?

Senator DOMENICI. Either or any of you.

Mr. BLOCH. Let me take that question. You weren't here, I think, when we went through and discussed the MRL's, the materials research laboratories. These are centers, and they have done very well over the last 10 or 12 years—that is how long they have been in existence—in pushing forward our understanding in many of the materials areas that are important for industrial competitiveness and for our society.

So there is an example, a living example.

HIGHER EDUCATION OF SCIENCE AND ENGINEERING STUDENTS IN KEY AREAS

Senator DOMENICI. Finally, I find every time I talk about engineering that we tend to focus on numbers of engineers and the like. I would just like to ask if it is not true that America's higher education has permitted the whole area of industrial engineering to almost wither to a nonacademic field? If so, does that not bode poorly for the future of this country?

Dr. SCHMITT. I agree with your point, Senator. Earlier, before your arrival, we talked about the reasons why American industry has failed in certain areas.

I tend to agree with you that in certain areas of technology that have not been so glamorous over the past couple of years, we have tended to deemphasize them and not produce students trained well and strongly in those areas, in the manufacturing area, for example, especially.

You need just as high quality brains on the manufacturing floor as you need in the design and engineering centers. We have not done that very well. That, in my opinion, is a place where the Japanese really have beat us. They get their top-flight people on the manufacturing floor and don't try to do large quantum innovations in the design part of their cycle.

Mr. BLOCH. Can I add to that one? There are two areas—manufacturing and the research area—that Dr. Schmitt focused on, and the other one is the design area. How does one design the product?

As universities have not focused on that, many of the engineering research centers are focusing exactly on those two programs, about 5 or 6 of the 11, at least, and I think that is absolutely necessary and required.

Senator DOMENICI. Thank you, Mr. Chairman.

Senator PROXMIRE. Thank you, Senator Domenici.

Senator Grassley?

Senator GRASSLEY. Thank you, Mr. Chairman.

PRECOLLEGE EDUCATION

Dr. Schmitt, I am interested in, as you try to use the resources of our government and private sector to orient young people, elementary and high school people more into science-related programs to solve a problem that we are probably two decades behind on solving, and that is not your fault, but just generally, a societal and educational problem we have here.

In the effort to get those younger people at the high school and elementary level more interested in sciences and participating in those programs, I am interested in any new programs or the reorientation of old programs that are being now used to accomplish that, and then also a commentary on whether or not you think that the best way of trying to get students involved with emphasis upon the teacher and our federal efforts for teachers being more involved and, in turn, getting students more involved in science.

In other words, the programs that go directly to the student as opposed to indirectly to the student through the teacher.

Dr. SCHMITT. In terms of initial motivation, I am no expert, but it is my observation that one of the key things in attracting young people into science and getting them into doing it in the first place is an inspired, competent teacher.

I think we have had great difficulties with the lack of a sufficient number of such teachers in our precollege education in the past couple of decades. I think concentrating on the teachers is a high leverage way of attacking that problem.

I might say, Senator Grassley, as I am sure you recognize, the problem of recruiting people to pursue science and engineering careers is going to become more severe in the immediate future because of the demographics. The population mix is shifting to larger numbers in groups that have not participated as strongly in science and technology

in the past and we are going to have to get many more people from those underrepresented populations interested in science.

Senator GRASSLEY. Yes; you can answer, too, and I don't dispute the very necessary approach of enhancing teaching and using that as a method. But I just wonder of the extent to which there is a reorientation or a new effort to go around or to supplement that by programs more directly oriented to the student, and you are really saying that we aren't looking at that and that there isn't any and that we ought to still continue going through the teacher.

Dr. SCHMITT. I didn't mean to imply we weren't looking. Dr. Moore would like to answer you. Let me give you one additional comment. From my involvement in the industrial sector, I find that there are a lot of local initiatives and local activities going on between industrial plants, industrial laboratories, and the like, and the communities they happen to be in. That is a very spotty thing, but I see it happening, and that has pleased me very greatly in recent years.

Senator GRASSLEY. I thank you.

Dr. MOORE. Senator Grassley, I might just point to a couple of things that we are doing and plan to do in fiscal 1988 in this area. One is to study what are the critical points in the career choices by young people; to understand better what it is that leads them to or away from careers in science and engineering. That is one activity.

JUNIOR SCHOLARS PROGRAM

Perhaps a more direct program is in our 1988 plans for what is called the junior scholars program, which is directed at high school students with the purpose of trying to get them exposed to what research in science is like while they are still in high school.

This program will take promising high school students and put them into laboratories to do some research projects.

Senator GRASSLEY. On that latter point, could you inform me, is that a new effort?

Dr. MOORE. That is a new effort.

Senator GRASSLEY. OK; that answers my question.

Thank you, Mr. Chairman.

Senator PROXMIRE. Thank you very much, Senator Grassley.

Our next witness is the President's Science Adviser, Dr. William Graham.

Thank you so much, gentlemen, for your excellent testimony. You are a very high-class operation with very high-class leadership and asking for a very high-class budget. [Laughter.]

Dr. SCHMITT. I hope we get it.

Senator PROXMIRE. I don't know about that.

Is Dr. Graham here? Dr. Graham will be back, I understand, momentarily. He stepped out for just a moment.

[A brief recess was taken.]

EXECUTIVE OFFICE OF THE PRESIDENT

OFFICE OF SCIENCE AND TECHNOLOGY POLICY

STATEMENT OF DR. WILLIAM R. GRAHAM, SCIENCE ADVISER TO THE PRESIDENT, AND DIRECTOR, OFFICE OF SCIENCE AND TECHNOLOGY POLICY, EXECUTIVE OFFICE OF THE PRESIDENT

ACCOMPANIED BY JONATHAN F. THOMPSON, EXECUTIVE ASSISTANT

INTRODUCTORY REMARKS

Senator PROXMIRE. Our next witness is the President's Science Adviser, Dr. William Graham, who will present the fiscal 1988 budget for the Office of Science and Technology.

You may summarize your opening statement, if you wish, Dr. Graham, with the knowledge that it will appear in the record in its entirety. Go right ahead, sir.

Mr. GRAHAM. Thank you, Mr. Chairman. I am pleased to have this opportunity to appear before you and the committee as you deliberate federal agency budgets, including the budget in the Office of Science and Technology Policy, a part of the Executive Office of the President.

With me today is Mr. Jonathan Thompson, my Executive Assistant, whose biography you have and who will be prepared to address specific questions about budget details for our Office.

SUMMARY STATEMENT

You also have before you that budget which reflects a straight-line constant level of expenditure from 1987, reflecting only a 24.5-percent increase that we have been told will be charged by the General Services Administration for the same office space as we have this year; the annualized 1988 cost of the January 1987 3-percent pay raise; and the cost of the new federal employees retirement system. Mr. Chairman, as you are aware——

Senator PROXMIRE. We have a question on that 24.5-percent increase, but we will ask you to respond for the record on it.

Mr. GRAHAM. Yes, Mr. Chairman.

Senator PROXMIRE. That is an increase not in your budget; that is an increase in your rental charge, right?

Mr. GRAHAM. That is right. In fact, I think Mr. Thompson has some later data that suggests maybe the charge may not be as great as that.

Senator PROXMIRE. We will get into details in your written response.

Mr. GRAHAM. As you are aware, Mr. Chairman, enactment of the Gramm-Rudman-Hollings legislation set the terms for the long-term strength and prosperity of our country. The absence of a crippling

deficit budget is necessary for the economic prosperity and spirit, but that alone is not sufficient. We must also have the capability to deter any potential aggressors and the technological and human resources to function effectively in an increasingly competitive national and international marketplace.

The proposed budget for fiscal year 1988, which meets the Gramm-Rudman-Hollings target for deficit reduction, constrains the discretionary component of the budget, which itself is a minor share of the total federal budget. In fiscal year 1988 and beyond, therefore, the federal government can fund only those activities that are essential for it to fund, essential to our traditions, essential to our security, and essential to our prosperity and to our future.

BASIC RESEARCH

High among our national priorities is the basic science and technological research that provides much of the foundation for our well-being. Once again, the President has renewed his long-standing commitment to research, assuring investment in the future. As he said last month, and I quote:

America's most competitive edge has always been our science and technological creativity. But we still aren't doing enough. In too many industries, we have developed the technology, only to see others bring it to the marketplace. Our legislative package will help make the journey from the American laboratory to the American factory to the world market a shorter journey and a more certain one.

Part of our focus will be on federal laboratories, including defense laboratories. Some of these are among the largest and most productive centers of scientific research in the world. But in the past, there have been roadblocks between what is going on inside and the commercial world outside. That will certainly change. We will encourage scientists working in federal laboratories to patent, license, and commercialize their research. Federal agencies will establish royalty-sharing plans with their scientists. We will recruit science entrepreneurs to act as conduits between the laboratories and businesses, venture capitalists, and universities.

We will also encourage exchanges between federal laboratories and private industry so each can benefit from the other. We will encourage our defense and space programs to continue to spin off technology to industry and to do it even faster than they have. And we will double the budget for the National Science Foundation over the next 5 years——

and I would note this continues a trend that has been part of the President's budget and part of the congressionally passed budgets in past years.

We are also proposing to establish a number of science and technology centers around the nation.

Continuing to quote:

They will be on the campuses, and they will focus on areas of science that directly contribute to America's economic competitiveness. They will be the homes to long-term research in such areas as robotics for automated manufacturing and microelectronics, new material processes, and biotechnology. This will help ensure that when it comes to technological leadership, America in the next century will continue to have the inside edge.

I end my quote of the President there, Mr. Chairman.

PRESIDENT'S PROPOSED BUDGET

The President's proposed budget for fiscal year 1988 continues to emphasize maintaining national security, strengthening our economic competitiveness in the international marketplace, and improving the quality of life for all Americans, and continuing to pursue the themes of our intellectual and cultural heritage.

Obviously, science and technology can contribute to the realization of all these goals.

R&D BUDGET

The proposed research and development budget reflects the President's commitment to continuing national investments in science and technology. In fiscal 1988, we propose to obligate a total of $64.8 billion for the conduct of research and development, an increase of 13 percent over the current fiscal year obligation of $57.6 billion. Of this total, $18.2 billion is for nondefense functions and $9.1 billion is for basic research, an overall increase of 4 percent above the 1987 obligation of $8.8 billion, which itself was an increase over the previous year.

U.S. ECONOMIC COMPETITIVENESS

Improvement of U.S. economic competitiveness in the world is a major theme of this budget. The administration recognizes that our future position in global markets will depend, to a great extent, upon the continuing development of the foundation of our science and technology; allocation of resources; and the effective and timely transfer of new knowledge from laboratories and universities to our industry and to our national security.

To this end, specific increases in basic research have been proposed by the President, including a 17-percent increase in the basic research funding for the National Science Foundation from $1.36 billion in fiscal 1987 to $1.59 billion in fiscal 1988.

Mr. Chairman, if I may, I will submit the rest of my statement to the record and be glad to address your questions.

Senator PROXMIRE. Very good. Your statement will be printed in full in the record.

Mr. GRAHAM. Thank you.

[The statement follows:]

STATEMENT OF DR. WILLIAM R. GRAHAM

Mr. Chairman and Members of the Subcommittee:

I am pleased to have this opportunity to appear before this Subcommittee as you deliberate the federal agency budgets within your purview, including that of the Office of Science and Technology Policy in the Executive Office of the President. With me today is Jonathan Thompson, my Executive Assistant, whose biography you have.

You also have before you the OSTP Fiscal 1988 budget which reflects straight line from 1987 with a 24.5 percent increase that will be charged by GSA for the same office space, the annualized FY 1988 cost of the January 1987 three percent pay raise, and the cost of the new Federal Employees' Retirement System (FERS). Jonathan Thompson will comment on a few items in the budget.

As you are so well aware, enactment of the Gramm-Rudman-Hollings Act set the stage for the long-term strength and prosperity of our country.

Absence of crippling federal deficits is necessary for economic strength and prosperity, but it is not sufficient. We must also have the capability to deter any potential aggressor and the technological and human resources to function effectively in an increasingly competitive national and international marketplace.

The proposed budget for fiscal year 1988, which meets the Gramm-Rudman-Hollings target for deficit reduction, constrains the discretionary component of the budget, which itself is a minor share of the total federal budget. In fiscal year 1988 and beyond, therefore, the Federal Government can fund only those activities that are essential for it to fund--essential to our traditions, essential to our security, essential to our prosperity, and essential to our future. High among our national priorities is the basic scientific and technologoical research that provides much of the foundation for our well-being.

Once again, the President has renewed his commitment to research, assuring investment in the future. As he said last month, and I quote:

"America's most competitive edge has always been our scientific and technological creativity....

"But still we aren't doing enough. In too many industries we have developed the technology, only to see others bring it to the marketplace. Our legislative package will help make the journey from the American laboratory, to the American factory, to the world market, a shorter journey and more certain one.

"Part of our focus will be on federal laboratories, including defense laboratories. These are among the largest and most productive centers of scientific research in the world. But in the past there have been roadblocks set up between what was going on inside and the commercial world outside. That will change. We will encourage scientists working in federal laboratories to patent, license, and

commercialize their research. Federal agencies will establish royalty-sharing plans with their scientists. We will recruit science entrepreneurs to act as conduits between the laboratories and business, venture capitalists and universities. We will also encourage exchanges between federal laboratories and private industry, so each can benefit from the other. We will encourage our defense and space programs to continue to spin-off technology to industry and to do it even faster than they have. And we will double the budget of the National Science Foundation over the next five years (thus, I would note, continuing the trend that has been a part of the President's budgets in previous years.)

"We're also proposing to establish a number of "Science and Technology Centers" around the nation. These will be on university campuses. They will focus on those areas of science that directly contribute to America's economic competitiveness. They will be homes to long-term research in areas such as robotics for automated manufacturing and microelectronics, new material processes, and biotechnology. They will help to ensure that when it comes to technological leadership, America in the next century will continue to have the inside edge." (UNQUOTE)

The President's proposed budget for fiscal year 1988 continues to emphasize maintaining national security, strengthening our economic competitiveness in the international marketplace, improving the quality of life for all Americans, and continuing to pursue the themes of our intellectual and cultural heritage. Obviously, science and technology can contribute to the realization of all these goals.

The proposed research and development budget reflects the President's commitment to continuing national investments in science and technology. In fiscal year 1988, we propose to obligate a total of $64.8 billion for the conduct of research and development, an increase of 13 percent over the current fiscal year obligation of $57.6 billion. Of this total, $18.2 billion is for non-defense functions and $9.1 billion is for basic research, an overall increase of 4 percent above the 1987 obligation of $8.8 billion.

Improvement of U.S. economic competitiveness in the world is a major theme of this budget. The Administration recognizes that our future position in global markets will depend to a great extent upon:

- the continuing development of the foundation of our science and technology in basic research;
- the allocation of our national resources on a long-term and reliable basis to generate new knowledge;
- the effective and timely transfer of new knowledge from our laboratories and universities to our industry, economy, and national security.

To this end, speciific increases in basic research have been proposed by the President. These include a 17 percent increase in the basic research funding for the National Science Foundation, from $1.36 billion in fiscal 1987 to $1.59 billion in fiscal 1988.

Science, Technology, and Global Competititiveness

The President has consistently recognized the special role of our universities in generating new knowledge to spark technological innovation and in producing trained men and women to meet the demands of industry and government. From 1982 to 1988, the amount of federal funds allocated to basic research will have grown by more than 65 percent. More than half of Federal Government support for basic research goes to universities. Since major federal support for basic research in physical sciences and engineering is provided through the National Science Foundation, the Administration proposes by 1992 to triple the NSF's 1980 level of support for basic research.

The White House Science Council's report on the Health of U.S. Colleges and Universities, issued in February 1986, recommended not only increased federal support for academic research but also the establishment of more university-based interdisciplinary science and technology centers. In keeping with this recommendation, the fiscal year 1988 budget includes funds to establish up to 15 new interdisciplinary basic science and technology centers through the National Science Foundation. These centers will be modeled after the existing engineering research centers and will emphasize partnership with industry and state and local governments.

This nation's activities depend on the talent and education of our citizens in mathematics, science, and engineering. In the last few years, several reports have expressed concern about the quality of our educational system from elementary school through graduate school: First Lessons by Secretary Bennett; A Nation at Risk by the National Commission on Excellence in Education; the David report on Renewing U.S. Mathematics; and the Packard/Bromley report, A Renewed Partnership, to name only a few. We are faced with shortages of teachers in some fields now, and by the mid-'90s there could be an across-the-board decrease of 20 percent in the number of bachelor's degrees awarded to our citizens in math, science, and engineering if the enrollment in these fields remains at its current percentage level, while the now-certain cyclic demographic decrease in the number of people in the college-age group occurs.

Increased investment in basic research and in transferring that research to industry will strengthen and modernize our educational capabilities and help train our next generation while it is advancing our knowledge and improving our ability to put that knowledge to work. In particular, NSF's engineering research centers, new basic science and technology centers, and advanced scientific computing centers are all expected to have a major impact on education and technology transfer. Increases are also being proposed for NSF's graduate fellowship program, for scientific equipment, and for undergraduate and pre-college science and math education.

As we look to the future and ask ourselves what we should be doing now that will support our science and technology enterprise in the next century, the term "multidisciplinary" comes to mind. Much of what we must do crosses the lines of traditional university disciplines. The basic science and technology centers proposed for 1988 would respond to the need of university-based interdisciplinary research and technology centers directed to problems of broad national priorities underlying our industrial economy.

It has always been a major tenet of this Administration's science and technology policy that the Federal Government should not try to usurp the private sector's role. The greatest strength of this country lies in the ingenuity, skill, and drive of its private citizens. As we saw when the President recognized the preeminent accomplishments of the around-the-world-aircraft Voyager's designer, as well as its pilots, private sector initiative and creativity are very much alive in this country. It is a strong indication of the importance and success of our federally funded basic research efforts that Burt Rutan could draw on NASA-developed basic technology in materials, aerodynamics, and propulsion for the Voyager. I believe that the Voyager serves as a model of what can be done when government-developed basic technology is harnessed by private citizens and U.S. industry that have a vision of the future and the inner resources to make that vision into a reality.

Space Science and Technology

As we are all aware, just over a year ago America lost the dedicated crew of the Space Shuttle Challenger and the Challenger itself. Since at the time of the tragedy I had just become the Acting Administrator of the National Aeronautics and Space Administration, the sadness has for me a strongly personal dimension. In the dark days following that tragedy, relatives of the seven brave companions expressed their hope that our efforts to expand the frontiers of space would not end. They and all of us can take heart in knowing that the President has directed us to ensure that the U.S. space program will continue, and he has increased the NASA baseline research and development budget from $4.2 billion in fiscal 1987 to $4.5 billion in fiscal 1988, on top of other increases to fully support and confirm our preparations to return to manned space flight.

This increase provides for two new initiatives: the Global Geospace Science Program (GGS) and the Civil Space Technology Initiative (CSTI). GGS will expand international cooperative efforts to investigate the interaction of the Sun with the Earth's environment, and CSTI will explore a range of enabling space technologies important to continued U.S. leadership in space. For other science and applications programs, the budget continues support for major flight projects, including the Space Telescope, the Galileo mission to Jupiter, the Upper Atmosphere Research Satellite, and the Ocean Topography Mission (TOPEX).

The setbacks that the United States had had with the Delta, Titan, and Shuttle space launchers has made it clear that our national launch capacity had become too narrow and vulnerable to error. To rectify this situation, NASA will soon begin replacing the Challenger.

In addition the Department of Defense is taking several important steps regarding expendable launch vehicles:

First, the DOD is increasing its acquisition of Titan IVs, which will have approximately the same cargo capacity as the Shuttle.

Second, the DOD is developing a medium expendable launch vehicle (MELV) to deliver intermediate-sized payloads to orbit. The acquisition plan for the MELV makes specific provision for its use as a private commercial launch vehicle, as well as a government launcher.

> Finally, the DOD has asked for $250 million in its 1987 supplemental budget request and a further $300 million in the 1988 budget to initiate work on a heavy launch vehicle, which will have a hundred thousand pound class payload capacity. The resources required to develop, construct, and operate these launchers necessitate that they be viewed as national launch assets, and that they be acquired and employed in a manner that reflects the best use of their capabilities to meet our national launch requirements and priorities.

The nation's space program represents a long-term commitment to leadership unique in human history. We engage in space undertakings for the benefit of humankind, to contribute to our national security, to explore the universe from the immediate vicinity of the Earth to the farthermost reaches accessible to the most powerful instruments. At the same time, we want to use our highly sophisticated instruments to gain better understanding of our own planet, to discover its resources, to protect its biosphere, and to predict the effects of natural or manmade perturbations.

We are pursuing and planning scientific space exploration programs, involving both manned and automated space systems. We have recommendations for sending robat spacecraft to other bodies of the solar system, followed perhaps in the longer term by human crews. A study program is under way to determine the best way to ensure reliable, low-cost, and flexible access to space, so that we can eliminate the weaknesses in our space launch systems, building on our existing technological potential.

Our military space activities contribute to and benefit from the knowledge base developed by our civil and scientific space programs. They ensure that the space assets deployed to enhance our military capabilities and to support our national decision processes would remain viable over a wide range of conflicts, and that potential adversaries cannot use space for their own benefit in wartime.

We endeavor, in keeping with our space policy, to offer broader opportunities for private sector participation in the development of our space transportation infrastructure and in the development of space-based manufacturing processes. We envision a future where space, without losing its attraction for imaginative and venturesome young people, becomes at the same time an arena where calculated risk-taking will provide substantial rewards.

We continue to look at space as a unique opportunity to enlist the enthusiasm of the next generations. If we can stimulate learning and cultural and technological developments, our space investment will pay for itself a hundredfold.

As you begin the arduous process of reviewing the budgets for NASA, the NSF, and other agencies under your purview, I hope you will take into account what we in the Office of Science and Technology Policy (OSTP) have attempted to do with our own budget presentation. We must continue to seek ways to perform and deliver the maximum amount of services at the minimum cost to the taxpayer. Both the overall science and technology budget and the OSTP budget you have before you reflect that intent.

This concludes my prepared statement, Mr. Chairman. I would be happy to respond to your questions.

TWO-YEAR APPROPRIATION BILL

Senator PROXMIRE. Dr. Graham, Senator Domenici has suggested we explore the possibility of passing 2-year appropriation bills. Would that approach create any particular problem for your Office, or do you see a benefit in having to justify your budget only once every 2 years?

Mr. GRAHAM. I don't believe that that would create any difficulties, Mr. Chairman, from my Office, personally, and I would not object to it.

OSTP REQUEST

Senator PROXMIRE. Roughly, what proportion of your annual appropriation request do you consider to be simply a repeat of the prior year's submission?

Mr. GRAHAM. For the Office of Science and Technology Policy?

Senator PROXMIRE. Yes, sir.

Mr. GRAHAM. The budget is certainly based on the staff size, the floor space, and other charges which reflect the continuity of the operation. However, we do review those in the preparation of each budget so that they are not just a duplication of last year's budget, but they are reviewed anew each year to see that they are warranted and justified.

Senator PROXMIRE. Would you expect to realize any budget saving if you could plan on a 2-year basis? If so, could you estimate what the savings would be?

Mr. GRAHAM. May I take that for submission, Mr. Chairman? I would like to give that careful consideration.

Senator PROXMIRE. We would like to have that for the record, then. That is fine.

[CLERK'S NOTE: Agency failed to provide requested information.]

FEDERAL SPENDING

Senator PROXMIRE. Dr. Graham, we have heard from the Director of the National Science Foundation, who testified before you did, that the President is committed to the doubling of an NSF budget over the next 5 years. Apparently, the administration is supporting a supercollider that would cost between $4 billion and $8 billion a year to build and $1 billion to operate. That administration backed another initiative, a space station, that would cost $15 billion exclusive of operating costs. We note that the President is requesting $5.8 billion for SDI.

If we are serious about holding down federal spending, where is all this money coming from? Everything else is being either held down or cut except, of course, the rest of the defense budget, which is going up somewhat, but percentagewise, far less than in your area.

SDI FUNDS

Mr. Graham. Of course, Mr. Chairman, the SDI funds are designed to provide for our common security, and that is an extremely high priority for the nation. Without a sound basis for our continuing security, we can't do any of the other things that we need to do as a free and open society.

SPACE STATION BUDGET

As for the space station budget, I will say that that budget is under careful review right now. I believe it is premature to assume that it is going to be $15 billion to a particular point in time. But more basically, I would like to make it clear that we view the space station as a long-term project.

We believe that it will be in orbit for decades, and we are always talking about the budget to a certain point in time with the view of continuing that project well into the future and continuing to modify it, upgrade it, learn how to better use it, and how to better configure it.

That whole process of the evolution of the space station and, in particular, the first increment of that which would go between now and, say, 1994, 1995, is under intense review within the administration at this very moment.

We are reviewing it, among other things, to make sure we have a strong, independent view of what it will cost to obtain a specific set of capabilities. We are looking at the priorities for the station. We are looking at the management. We will be looking at the way it is being managed and all the other aspects of the problem of the station that contribute to its costs.

We hope to move forward on that in the immediate future and, of course, we will do that in close consultation with you, your committee, and other Members of the Congress.

SUPERCOLLIDER BUDGET

As far as the superconducting supercollider is concerned, while the total cost of that to operational status is now estimated to be $4.5 billion, that is not anticipated to be the cost to the United States.

That facility would be so large and so significant in high-energy physics that it will be a world-class facility. I doubt that there will be another one like it built anywhere. Then we would expect scientists from around the world to use it. Therefore, we would expect the scientists and their sponsoring agencies, their governments from around the world, to help.

FOREIGN CONTRIBUTIONS

Senator PROXMIRE. Do you have any commitments of any kind from any country to help build it, pay for the $4 to $8 billion it would cost to build?

Mr. GRAHAM. Not today, Senator. We are just beginning the process of formal discussions with countries around the world. However, we do have several statements of strong interest in participating in that, in the construction as well as in the operation and scientific phase.

TECHNOLOGICALLY QUALIFIED PERSONNEL

Senator PROXMIRE. I should have asked not only where is the money coming from, but where are the scientists coming from that will be working on this? We are told that SDI alone, if it is pushed to its trillion dollar ultimate, as the President constantly describes it, as a way of

defending our population, will take tens of thousands of physicists, mathmaticians, engineers, and it would simply seem to me to exhaust our supply of capability personnel. Has anybody thought about that?

Mr. GRAHAM. Senator, our supply of technologically qualified people—scientists, engineers, technicians, and so on—is a matter of very serious interest and concern to the country.

COST ESTIMATES OF SDI

Concerning SDI itself, I believe it is neither accurate nor timely to look to such large estimates for the system cost or for the manpower that is required for the system.

Senator PROXMIRE. We have to look at that. That is our job. We are told by former Secretary of Defense McNamara, Schlesinger, Brown, people immensely qualified, Brown particularly—he was head of the Livermore Lab—that the cost would be $1 trillion. He says it is going to cost between $100 and $200 billion a year to operate, maintain, and modernize it. As I say, you can't dismiss his estimates because he is very capable in this area.

If the administration would come up with some of its own estimates, that might be something, but they haven't. They haven't told us what it would cost to achieve what the President proposes.

Mr. GRAHAM. Mr. Brown and Mr. McNamara are both competent systems analysts and they understand that the conclusions you reach, a good piece of analysis, are dominated by the assumptions you make going in. I think it is important to look at their assumptions and to look at the President's assumptions.

The President's vision and his assumptions on the strategic defense initiative is that we wish to move away from an offense-dominated situation today, where we have literally thousands of offensive warheads in the field, to a situation where we are defense dominated and where we don't have thousands of offensive warheads in the field, but, rather, have defensive forces scaled in size to a defense situation where offenses are quite small and the defenses don't have to be enormous to contend with them.

The Soviets have made it clear that that is the goal they want to move to, and we certainly want to move toward that goal. We should be able to do it, if that is not their intention.

CAPABILITY OF NAS MEMBERS

Senator PROXMIRE. You say we should be able to do it. What is your estimate of the capability of the people who are members of the National Academy of Science? Do you think that they are able people and competent people?

Mr. GRAHAM. I believe that to the degree they can be described as a group, they are each skilled in some area of science or engineering.

Senator PROXMIRE. They are the elite; they are the most distinguished scientists we have in this country. To be elected to the National Academy of science is a great honor, and, as we know, there are something like 470 members who are physicists, mathmaticians, or engineers.

Cornell recently polled these 473 people. They received a remarkable response of 74 percent, I think. They were asked, "In the next 25 years, could SDI be made cost effective at the margin?" That is, would it cost less to construct it than it would cost the Soviet Union to overcome it in the next 25 years?

Exactly 4 percent said the chances were good or very good; 80 percent said the chances of achieving that were either poor or extrely poor in 25 years. Now, your notion that the practical assumption, a scientific assumption, that we can build an SDI and spend this fantastic amount of money and absorb an enormous portion of our scientific capability in this process, it seems to me, is challenged as effectively as it can be by our most competent independent experts in the area.

Mr. GRAHAM. Mr. Chairman, I read both the questions and the results of that study, and I must admit, I was surprised, because the description of what SDI is was not clear; it was not explicit, and they were being asked to talk about it, where it was an undefined quantity in the study.

The response was, in my view, inappropriate to such a poorly described activity in terms of the survey itself; that is, the survey did not say what it was talking about. It asked the scientists to assume something implicitly and then give explicit answers. As a technologist myself, I have always found that to be a counterproductive process, and I believe it took place in that study.

At the same time, let me say that the people who did that were, in fact, from a variety of disciplines but not the disciplines which would be the majority of the ones on the line for designing and developing this system.

Those are the people in our industry, not the people in our academic sphere, which are most of the members of the National Academy of Science.

Senator PROXMIRE. You don't think physicists or mathmaticians or engineers are in a position to make this evaluation? It seems to me most of us are getting our judgment from the neighborhood bartender or some Senator who has absolutely no scientific background at all, like me.

Mr. GRAHAM. I believe that the work will actually be done more by industry than by academic, Senator, and the academy is more from the academic sphere than industry. Let me say that the President's program today is trying valiantly to move forward to understand what it would actually require in terms of developmental activities, in terms of program design, and development, and ultimately, cost.

We are not yet at the point where we know what the cost of an on-the-shelf SDI capability would be, because today, we do not have an on-the-shelf SDI system that we can show to the President and say, "Here is what it costs; here is what it does. What is your decision?"

We are trying to move in that direction.

Senator PROXMIRE. The President and Secretary Weinberger have been very explicit in saying that what they intend to do is to develop an SDI that is a population defense for the cities of this country to save the lives of the American people. That is well known, and certainly, people like McNamara, Schlesinger, Brown, and the members of the National Academy of Science, it seems to me, are in the best independent position to judge it.

But let me go on to another question.

Mr. GRAHAM. Let me just say, they are making assumptions, Mr. Brown and Mr. Schlesinger, about exactly how the Soviets will respond to this. I certainly am giving the Soviets an opportunity to respond in a way that is plausible and constructive, which is certainly the way they say they want to proceed with arms control reduction of nuclear weapons and reduction of offensive sources, generally.

If they do, in fact, if the Soviets do move in that direction, the requirements for defensive capabilities, as an insurance against covert forces, breakout forces, third country forces, will not be extremely large.

Senator PROXMIRE. Of course, I don't want to go too far in this thing, but the ABM Treaty was our baby. We had to urge the Soviet Union, plead with the Soviet Union, argue with the Soviet Union, for 7 or 8 years. They opposed it consistently. They thought they could build some kind of a defense. They finally found out they couldn't do it.

Our experts, our former Secretaries of Defense, know that it is something that can't be achieved.

For a small fraction of the cost of building it, it can be overcome.

Let me go on to something else, the space station.

SPACE STATION

Dr. Graham, as former Acting Administrator of the National Aeronautics and Space Administration, now as the present Science Adviser, you are in a unique position to discuss NASA's program in the context of the federal government's total commitment to the scientific communities.

They are before this Appropriations subcommittee, too, for their funding. I would like to ask you a couple of questions about issues that will have a profound effect on NASA's budget which we have to recommend to the Appropriations Committee and to the Senate.

First, we have only recently learned that space station cost estimates have just about doubled as a result of an internal NASA study.

You have already addressed that issue. However, I understand that you may be in the process of asking the National Academy of Engineering to make an independent cost analysis of the space station. Is this the case, and if so, when might we expect the study to be completed?

Mr. GRAHAM. Senator, some time ago, in conjunction with the 1988 budget, the Office of Management and Budget of the Executive Office instructed NASA to work with the Executive Office to provide for an independent review of the space station program.

We still have that independent review very much on the agenda and are trying to make plans for that concrete. That has not happened yet, but I would look forward to that in the next few weeks.

Senator PROXMIRE. What timeframe are you talking about?

Mr. GRAHAM. I would hope to start that review within the next couple of weeks, basically, as far as we can push it through.

Senator PROXMIRE. How long will it take to be completed?

Mr. GRAHAM. I would like to see it done over a period of a few months, but not a year. The only——

Senator PROXMIRE. I think that is realistic.

Mr. GRAHAM. The only caveat I put on that is that I think we can review issues in a priority sense, and there may be some that we may wish to pursue independently over time, but certainly, those that affect the immediate planning of the space station should be done in as close of synchronization with that planning by NASA.

Senator PROXMIRE. What do we do with your budget request in the meantime? We have to act expeditiously in this committee.

Mr. GRAHAM. I might suggest, Mr. Chairman, if you will give us a very small amount of time to complete our deliberations within the Executive Office in consultation with NASA, we would be pleased to come forward and describe what we think is a sensible and constructive course to pursue with your committee.

EXPENDITURES FOR SPACE STATION

Senator PROXMIRE. Is the administration in general and your Office in particular looking at possible changes in the current space station configuration in view of the projected cost growth?

Mr. GRAHAM. Yes, Senator; I believe that in view of the potential cost growth with the station, it is important that we look at alternatives of at least the type in which the capabilities of the space station are implemented in a priority sense, but in a sequence which goes over a longer period of time at the lower rate of expenditure than that which was originally envisioned for the station.

I hasten to add, of course, what you will find if you put the existing budget profile and implement it. That is one option. I would like to continue a range of viable options and to be able to place those before the President as a result of our review of the space station.

MIXED FLEET

Senator PROXMIRE. The NASA Advisory Council Task Force for the Study of Mixed Fleet Issues has issued a final report recommending that NASA should, and I quote now: "On a most urgent basis, initiate a program to incorporate a diversified family of expendable launchers into a space flight program."

The report points to a deteriorating situation—that is the way they phrase it—if this step is not taken. Is your Office involved in this issue, and if so, have you taken a position on the matter?

Mr. GRAHAM. No, Mr. Chairman, our Office has not yet received a copy of that report, nor has NASA addressed it or its conclusions to us.

We look forward to hearing from them when they have their own views established on the matter.

Senator PROXMIRE. I understand the task force believes that NASA should contract directly for expendable launchers with the suppliers selected by the Department of Defense rather than using the Air Force as a procurement arm. How do you respond to that suggestion?

Mr. GRAHAM. I believe that we should proceed in a way which provides space launch capability in any area at a minimum cost to the government.

I have not reviewed this particular area to see how that might be, but I think it is clear enough guidance that we can pursue it directly.

NUCLEAR WINTER

Senator PROXMIRE. I have been very interested in the nuclear winter phenomenon that has been talked about and examined and that many people think is a likelihood in the event of a superpower nuclear war. In 1985, Congress passed and the President signed into law a resolution calling for a joint United States-Soviet study of nuclear winter. Last year, in response to a letter that Senator Hatfield and I wrote, the State Department told us that a proposal was being developed to pursue such a joint study under EPA's United States-Soviet Environmental Agreement.

What has happened to that study?

Mr. GRAHAM. We have an extensive range of activities underway on a bilateral basis between the United States and the Soviet Union in environmental studies, including studies of the climate and climate modification issues.

That provides the technical foundation for anything being done in the nuclear winter area. We believe that is where the effort needs to be placed to better understand nuclear winter, but also other effects, greenhouse effects, ozone depletion, and so on.

We are working on that in cooperation with the Soviets. Our general concern is that we work in those areas where the Soviet Union has something to contribute scientifically and technically, and we are working to continue to identify those areas.

Senator PROXMIRE. It just seems to me that the Office of Science and Technology Policy was put in charge of coordinating that proposal. It appears that your Office has been dragging its feet on getting anything started with the Soviets.

Mr. GRAHAM. No, sir; it is a very active program underway with the Soviets across a range of environmental issues.

Senator PROXMIRE. On nuclear winter?

Mr. GRAHAM. Including the elimate studies, which underlie climate modifications which relate to nuclear winter.

Senator PROXMIRE. They may underlie a lot of things, and do, but the President signed into law 2 years ago a resolution calling for a joint United States-Soviet study of nuclear winter. We haven't presented any kind of a proposal to the Soviets, or have we?

Mr. GRAHAM. All we have seen coming back from them on nuclear winter so far is basically a rehash of the material we provided them on it. That is why we think it is important to proceed with them from the sound scientific and technological basis of climate change and modification, so we can have common ground for progress on that subject and on other very important climate modification issues.

Senator PROXMIRE. Let me ask you this, then. Isn't it correct that there are a number of benefits to be derived from a joint United States-Soviet study on nuclear winter, but the White House is stalling on this issue because of the ideological opposition to the whole nuclear winter idea?

Mr. GRAHAM. No, sir; we are looking at nuclear winter from within the government, and we are looking at the broader range of the science and technology issues and climate modification with the Soviet Union, but we want to engage in constructive scientific research with them on this, and we have to find the basis of that research, both technological and in the establishments of the Soviet Union, before we think it is worth proceeding on very specific issue like the one you describe.

Senator PROXMIRE. On page 34 of your justifications, you say, and I quote, "Current research results are predicting a much less severe effect for nuclear winter than previously postulated."

That may be true for the climatic effects, but aren't you leaving a key piece of information out here? Isn't it true that current researchers such as the SCOPE study shows that the ecological and biological consequences might be even more than once thought?

Mr. GRAHAM. I believe there is a wide range of scientific opinion on that, Mr. Chairman. I don't believe there is a strong consensus on the issue, although I believe everyone would agree that nuclear war would be a terrible tragedy for a large number of reasons, including the effects on the human population and biosphere and so on.

The details of it, though, depend very much on the assumptions that are made and on the issues that are included.

NUCLEAR WAR

Senator PROXMIRE. There is some solid scientific thinking that indicates that there could be some substantial drop in temperature. There is a difference of opinion as to how much. Carl Sagan believes it could be as much as a a 50 or 60 degree drop in temperature below normal.

Of course, it would have a devastating effect on food production, possibly resulting in human starvation and so forth. I am sure that that kind of conclusion is subject to debate and to challenge, but Dr. Sagan

is an extraordinarily, highly respected scientist, and many other people agree with him.

Mr. GRAHAM. Mr. Chairman, there is no question that a nuclear war would be a terrible catastrophe. There have been a lot of technical discussions as to whether the simplistic, one-dimensional radiation transport models that were used in Dr. Sagan's original estimates of nuclear winter are, in fact, technologically valid.

Subsequent studies have indicated that the effects that they were predicting are not, in fact, as severe as they determined with those very simple models.

However, this is not to minimize the importance of preventing nuclear war, and that is certainly the intention of this entire country.

Senator PROXMIRE. Yes; but it seems to me that there is something more here that is being overlooked, and that is the importance of any kind of cooperation with the Soviet Union, particularly in the area where both countries would be put in such enormous danger. It seems to me that our responsibility to the rest of mankind is also being overlooked. After all, this is something that would reach far, far outside our borders, even if the superpowers attacked each other.

The nuclear winter effect would be one that could devastate the Earth. Maybe it is not true. At any rate, the point I want to make is that it seems to me to be very positive and constructive to have the two superpowers working together, cooperatively, recognizing the problem involved here. That is why I would hope that your Office would not drag its feet in going ahead with something that has been in the law since 1985, mandating that we proceed to the extent that we possibly could to work with the Soviet Union in this regard.

Mr. GRAHAM. We are certainly not dragging our feet, Mr. Chairman. At the same time, it serves no scientific or other purpose to discuss it with the Soviets only to have them feed back our own results to us. We send them all of our technical research on this subject, anyway. They are aware of our results.

If they have new results to bring to the table, we look forward to seeing them and using that as a basis for cooperation on this issue. But we don't want to get engaged in this merely as a propagandistic issue on the part of the Soviets when they are not making any scientific contribution to the subject. That has been our history to date.

Senator PROXMIRE. This is an American initiative. The Congress of the United States passed a law. The President signed a law mandating that we should have this cooperative study. It certainly isn't for propaganda purposes. This is for the most serious kind of a threat to human life.

Mr. GRAHAM. Mr. Chairman, we are cooperating with the Soviets as much as we can in a scientifically competent fashion. I am concerned that none of us can legislate or mandate that the Soviets provide original, basic technological contributions to this if they don't wish to, and we have not seen any strong signs of that yet.

SOVIET COOPERATION

Senator PROXMIRE. Have the Soviets refused to cooperate with us, Mr. Graham?

Mr. GRAHAM. They have not cooperated with us in the sense of providing new, original, basic scientific capability to contribute to this area.

Senator PROXMIRE. Have we asked them to do that?

Mr. GRAHAM. We have. We have had several discussions with them on a number of fronts. In fact, we are now trying to go back to the basics of the entire subject and build a common basis of understanding in the science and technology area.

Senator PROXMIRE. For the record, will you give us whatever material you have indicating initiatives we have taken to elicit cooperation, discussion and so forth with the Soviet Union of nuclear winter in accordance with the law that is on the books?

Mr. GRAHAM. I will be pleased to, Mr. Chairman.

Senator PROXMIRE. Thank you.

[CLERK'S NOTE: Agency failed to provide requested information.]

SUBMITTED QUESTIONS

[The following questions were not asked at the hearing but were submitted to OSTP for response for the record:]

Questions Submitted by Senator Proxmire

OMB PASSBACK

Question: Dr. Graham, last year OSTP's Acting Science Adviser stated that the President's budget request did not provide sufficient resources to do what is required of your Office. Did OMB give you the full amount you requested this year?

Answer: Our original OMB request was just over $2,000,000, not including the proposed SLUC increase and the FERS and 3 percent pay supplement. Our passback from the OMB was as you know $1,900,000 plus the cost of a SLUC increase, the FERS costs, and the pay supplemental.

UNOBLIGATED BALANCE LAPSING

Question: You had an unobligated balance lapse of $177,000 last year, roughly 8 percent of the total appropriation. This is not a large sum of money but I'm curious as to why these funds were not obligated. Can you tell us why?

Answer: $172,000 of the unobligated balance that lapsed were in personnel compensation categories. The funds had been left unobligated for use by the new Science Advisor for personnel appointments. As I was not appointed until after the fiscal year, the Office did submit a request for re-programming of the funds to Committee(s).

PROFESSIONAL STAFF

Question: On page 2 of your justification you state that you want to develop a permanent staff of 23 people although the table on page 9 shows only 15 full-time permanent positions in 1988. Can you reconcile this apparent discrepancy?

Answer: The table on page 9 reflects a total of 23 full-time equivalent (FTE) work years as opposed to 23 full-time permanent employees (FTP).

Question: Your justification indicates you will be reducing the use of detailees and continue to place an emphasis on a small permanent staff. However, the same justification talks about a no-growth budget. Won't it cost you more to shift from detailees, who, as I understand it, are paid by the detailing agency, to in-house staff?

Answer: At present we are reimbursing each detailee's parent agency 50 percent of the total costs for the detailee. Because our authorizing language requires us to reimburse parent agencies we will continue to abide by this requirement. We hope to have a greater emphasis on a smaller permanent staff.

OFFICE SPACE

Question: On page 14 of your justification you indicate that GSA plans to increase your rent in the Old Executive Office Building by 109 percent next year. However, my staff tells me that GSA has reconsidered and is only going to increase your rent by 89 percent.

Can you tell us now, or submit for this record, how the reduction will affect your budget request?

Answer: Since our submission of this budget, the GSA has resubmitted SLUC costs for the Executive Office of the President, including OSTP space, which will significantly reduce our expenses for rent in FY 88. The FY 88 SLUC will require a modest $3,000 increase in our SLUC as opposed to the original estimate of $106,000.

We believe the meager $3,000 increase in our overall SLUC costs can be absorbed in the present budget you have before you, therefore the affect will be minimal.

Question: Dr. Graham, as you indicated in your opening statement, a large portion of your requested budget increase, $106,000 to be exact, represents a 24.5 percent increase in your rental costs although you will not be occupying more space.

My impression is that the metropolitan Washington area has a great deal of excess office space and that rents in the area are not increasing significantly. Can you or your staff tell us why the General Services Administration is saddling you with this huge rent increase?

Answer: Since our submission of this budget, the GSA has resubmitted SLUC costs for the Executive Office of the President, including OSTP space, which will significantly reduce our expenses for rent in FY 88. The FY 88 SLUC will require a modest $3,000 increase in our SLUC as opposed to the original estimate of $106,000.

DEVELOPMENT OF PRECOLLEGE SCIENCE AND MATHEMATICS EDUCATION

Question: The National Science Foundation has been focusing on precollege science and mathematics education. What collaborative efforts, if any, are being undertaken by other Federal agencies in promoting the further development of precollege science and mathematics education?

Answer: There are a number of ongoing activities in the various federal agencies which promote precollege science and mathematics education. Examples of substantial, continuing collaborative efforts between agencies are the activities between the National Science Foundation and the Department of Education to support production of television programs such as 321 Contact and Square 1 TV, aimed at elementary school students. The National Aeronautics and Space Administration is cooperating with NSF and Disney to produce Science Moments, brief spots on happenings in science and technology to air on commercial television. In his State of the Union address, the President called for renewed effort focused on precollege education. The NSF is planning activities responsive to the President's direction.

MANNED SPACE PROGRAM

Question: The Office of Science and Technology Policy has expressed its commitment to ensuring our Nation's continued leadership in space science and technology.

What are the OSTP's plans, both long and short term, for the future of

our Nation's manned space program?

Answer: The President has approved a National Space Policy in 1982 and a National Space Strategy in 1984 which contains a number of high priority efforts to implement the policy. Elements of the policy and strategy are to maintain U.S. leadership in space and to establish a permanently manned presence in space. NASA is planning and carrying out activities consistent with Presidential policy.

Questions Submitted by Senator Garn

AUTOMATION

Question: Your Office lapsed $177,000 at the end of FY 1986, in part because of constrained employment policies and because of statutory restrictions on application of these funds for equipment. The bulk of these office automation costs therefore are being borne in the current fiscal year.

Please describe these acquisitions and why there does not appear to be any reductions in your FTP clerical positions.

Answer: Equipment acquisitions for this fiscal year include purchasing equipment which when operable will be compatible with the entire Executive Office of the President. Therefore, we will be consolidating our use of equipment from seven different types of equipment to primarily one type of equipment, namely IBM.

As for any reductions in clerical positions, we have experienced a reduction in clerical positions since FY 86 of approximately one and a half positions.

BUDGET CONTINUITY

Question: Anyone who has participated in the Federal Government's activities is painfully aware of the mecurial ebb and flow of political interest and budgetary support. Your statement acknowledges the special value stability of funding has for scientific research and development by noting that the Administration recognizes the need for "allocation of resources on a long-term and reliable basis."

This commitment is reflected in the substantial increases being recommended for research and development, including proposals to invest in several major new projects as the $6 billion superconducting supercollider (SSC). Unfortunately we may, by committing to these large, long-term investments, be setting ourselves up for very disruptive restructuring in the out-years as we find that we cannot follow-through on our commitments. Does this concern you?

Answer: Yes, it does concern me. I could easily cite a number of cases where tight budgetary problems have led to the restructuring or even the demise of major programs after the expenditure of significant funds but before program completion. In addition to being fundamentally wasteful, such problems can have a devastating effect on the community involved. We must be prepared to stand behind our commitments with continuing funding support.

SIGNIFICANCE OF GOVERNMENT EXPENDITURES

Question: It has been observed that the United States exploited a body of basic research which was fundamentally developed in Europe in this century. Further, we now see the Japanese exploiting the work of our basic science to gain similar economic preeminence in the 70's and 80's. The premise of this observation is not the scientific capability of our society that yields economic competitiveness but rather the cultural and economic climate which permits our industrial base to exploit all available technical knowledge, be it domestic or that developed overseas.

Do you agree with this analysis?

Answer: I could cite a number of examples of technology that have been developed in this country and has subsequently been exploited by other countries. Good examples come from Japanese-built consumer electronics products, for instance, the video cassette recorder, marketed in the U.S. Japanese developed technology is not available for U.S. industrial exploitation in a reciprocal manner.

STAFFING LEVELS

Question: Although staffing levels of OSTP have never been substantial, it does appear that significant shift away from detailees to permanent staff is occurring. In fact, the proposed FY 1988 budget reflects a 50 percent reduction in detailee use from FY 1986.

Please explain the underlying reasons for this shift - especially in light of past justifications for heavy detailee use: i.e. need for special expertise on a temporary basis.

Answer: The reliance of a larger permanent staff will allow us to rely solely upon the stability of employees who work for the OSTP and whose payroll originate with us. Many times parent agencies will request detailees to return to parent agencies at inopportune times for the office, leaving us with vacancies on the staff in critical areas. A permanent staff will prevent this from happening. There will be times that temporary services of experts will be called upon, however, we hope to keep that necessity to a minimum.

Questions Submitted by the Senate Environment and Public Works Committee

ENVIRONMENTAL PROBLEMS

Question: Please describe each of your program(s) which directly of indirectly involve or support work on (a) the greenhouse effect, (b) climate change, and (c) stratospheric ozone depletion, including:

(a) basic research efforts
(b) effects on human health, biota, etc.
(c) studies of policy options for avoiding, minimizing, or coping with predicted changes, including use of alternative fuels and substitute chemicals and conservation.
(d) international programs

Answer: In 1985, OSTP prepared a report on Earth Science in the Civil Space Program which addressed the broad issue of obtaining and maintaining long-term environmental data bases. The Senior Interagency Group (Space) is currently reviewing that report. I have established the Committee on Earth Sciences of the Federal Coordinating Council for Science, Engineering and Technology to deal with these vital issues.

Question: Please indicate your current agency priorities and where among these priorities the problems of the greenhouse effect, global climate change, and stratospheric ozone depletion appear.

Answer: OSTP has a broad mandate in the Science and Technology area, and overall priorities vary over time; nevertheless, OSTP consistently places high priority on the review, motivation, and exploration of Federal programs that address large-scale environmental issues. The primary mechanism for carrying out these activities are the Committee in Earth Sciences of the FCCSET and, the federal budget review process.

Question: Does your agency have a major thrust or focus with respect to greenhouse, climate change, and stratospheric ozone issues? What are the priorities <u>within</u> your greenhouse, climate change, and stratospheric ozone programs? Are these multi-year efforts? When do you anticipate completing each of these projects?

Answer: From the overall perspective, there are three major priorities:

(1) Obtain long-term data bases required to permit separating the natural and human-induced variations in important global climate factors such as atmospheric CO_2 and ozone concentrations.

(2) Construct and validate global environmental models.

(3) Develop approaches for controlling and minimizing adverse effects upon the climate and other aspects of the environment. These will continue to be the priority research needs for the foreseeable future.

Question: The scientific evidence demonstrates that we are already committed to a $2^{o}C$ increase in global average temperature, and

and that the effects of global warming may be manifested as early as the next several decades. How have these findings been factored into your planning? How does the magnitude and timing of these changes affect your projects?

Answer: There is no direct scientific evidence, as yet, that a global temperature increase is occurring. However, OSTP is monitoring both the scientific and agency activities relating to global climate issues.

Question: Please provide a detailed accounting on the following, including a breakdown by specific office/laboratories and projects for each fiscal year.

(A) For the greenhouse effect
  (1) Expenditures in FY 86.
  (2) Appropriations and expected expenditures in FY 87.
  (3) Budget request in FY 88.

(B) For climate change
  (1) Expenditures in FY 86.
  (2) Appropriations and expected expenditures in FY 87.
  (3) Budget request in FY 88.

(C) For stratospheric ozone depletion
  (1) Expenditures in FY 86.
  (2) Appropriations and expected expenditures in FY 87.
  (3) Budget request in FY 88.

Answer: This question is not applicable to OSTP activities, since the Office does not itself conduct research activities.

Question: Please describe how your agency's efforts are coordinated with those of other federal agencies and the scientific community.

Answer: This question is not applicable to OSTP activities, since the Office does not itself conduct research activities.

Question: What do you see as the five highest priority research needs in the area of greenhouse effect, global climate change, and stratospheric ozone depletion?

Answer: From the overall perspective, there are three major priorities.

(1) Obtain long-term data bases required to permit separating the natural and human-induced variations in important global climate factors such as atmospheric CO_2 and ozone concentrations.

(2) Construct and validate global environmental models.

(3) Develop approaches for controlling and minimizing adverse effects upon the climate and other aspects of the environment. These will continue to be the priority research needs for the foreseeable future.

SUBCOMMITTEE RECESS

Senator PROXMIRE. The subcommittee will stand in recess until Friday, March 20 at 10 a.m. in room SD–124, same room, and we will take testimony from the Federal Emergency Management Agency.

Thank you, sir.

Mr. GRAHAM. Thank you.

[Whereupon, at 11:35 a.m. Friday, March 13, the subcommittee was recessed to reconvene at 10 a.m. Friday, March 20.]

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT-INDEPENDENT AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1988

FRIDAY, MARCH 20, 1987

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:14 a.m. in room SD-124, Dirksen Senate Office Building, Hon. William Proxmire (chairman) presiding.

Present: Senators Proxmire, Lautenberg, Mikulski, Domenici, and Hatfield.

FEDERAL EMERGENCY MANAGEMENT AGENCY

STATEMENT OF JULIUS W. BECTON, JR., DIRECTOR

ACCOMPANIED BY:

DAVE McLOUGHLIN, DEPUTY ASSOCIATE DIRECTOR, STATE AND LOCAL PROGRAMS AND SUPPORT
WILLIAM C. TIDBALL, CHIEF OF STAFF
GEORGE WOLOSHYN, ASSOCIATE DIRECTOR, EMERGENCY OPERATIONS
BARBARA A. JACOBIK, BUDGET OFFICER
CAESAR A. ROY, DEPUTY ASSOCIATE DIRECTOR, TRAINING AND FIRE PROGRAMS
HAROLD T. DURYEE, ADMINISTRATOR, FEDERAL INSURANCE ADMINISTRATION
CLYDE A. BRAGDON, ADMINISTRATOR, U.S. FIRE ADMINISTRATION
PAUL K. KRUEGER, DEPUTY ASSOCIATE DIRECTOR, NATIONAL PREPAREDNESS PROGRAMS

OPENING REMARKS

Senator PROXMIRE. Ladies and gentlemen. I want to apologize for being tardy. I had a speech on the floor, and I also had to attend another committee hearing.

This morning, we will take testimony from the Federal Emergency Management Agency on a fiscal year 1988 budget of $613 million, roughly, an increase of about $37 million, or 6.5 percent, over the Agency's current budget.

The budget request maintains most programs at or slightly below the current budget level. I think that makes sense. I am pleased to welcome Gen. Julius Becton, Jr., Director of FEMA, to the subcommittee.

General Becton, this is your second year with the Agency and I am delighted to have an opportunity to discuss your budget with you. I have read your opening statement, so please feel free to summarize, with the understanding that your complete statement will be included in the hearing record. We have some questions for you and your staff. Would you like to introduce some of the people at the table with you?

INTRODUCTION OF ASSOCIATES

General BECTON. Yes, sir; I would be delighted to. We are here this morning to discuss the budget. I would like to introduce my staff. First to my extreme right, Mr. Clyde Bragdon, Administrator of the Fire Administration; Mr. Caesar Roy, the Deputy Associate Director of Training and Fire Programs; Mr. George Woloshyn, the Associate Director of Emergency Operations; and Mr. Dave McLoughlin, the Deputy Associate Director of State and Local Programs and Support; my Chief of Staff, Bill Tidball; my Budget Officer, Barbara Jacobik; Harold Duryee, the Federal Insurance Administrator; and Mr. Paul Krueger, Deputy Associate Director of the National Preparedness Programs.

I have three other people to my rear, sir, to introduce: Mr. Dennis Kwiatkowski, the Chairman of the Emergency Food and Shelter National Board; Mr. Spence Perry, my General Counsel; and our new Comptroller, Mr. George Orrell.

The committee asked me to also have along my Inspector General, Mr. Jack Thiede, whom you see to your extreme right.

Senator PROXMIRE. Thank you very much, General. Go right ahead.

STATEMENT SUMMARIZED

General BECTON. I will, obviously, submit my prepared remarks for the record. I do have a few opening remarks. After more than 16 months at FEMA, I am convinced that we are carrying out our mission, and I read, in part, "To plan for and coordinate the protection of the civilian population and resources of the nation, to include planning for the coordination of constitutional government in time of emergency."

Last year, my highest priority was to reestablish the integrity and credibility of the FEMA family and to demonstrate our competence outside the Agency, both to other federal agencies and to the public constituency groups we serve.

I believe we have accomplished that. Our total request, as you pointed out, sir, is $613,394,000. That has been amended to read $633,394,000, with an outlay request of $694,668,000, which has been amended to read $703,668,000.

CIVIL DEFENSE

We believe this is consistent with the administration's deficit reduction goals for fiscal 1988. With that in mind, I consider the Agency's highest priority this year to be the initiation of steps leading to an eventual credible national civil defense program. There probably isn't a person in this room for whom the words "civil defense" don't conjure up some kind of picture, from one of people filling sand bags to keep-

ing floodwaters from inundating the community; for another, it might be the comical air raid warden scanning the skies for incoming ICBM's.

Let me take a minute to tell you what civil defense means to me. The first thing I have to say is that I'm against war of any type, and particularly war of a nuclear type.

If I am stating to you what must be obvious, let me assure you, it is not obvious to everyone. Since coming to FEMA, I have learned that there are some people who think that to protect the American people against the effects of nuclear attack is somehow the same as planning to wage nuclear war or to be engaging in an activity that makes nuclear war more likely to happen.

Civil defense for me is simply the government fulfilling its first responsibility to its people: By protecting them in war and peace. I might add that on the logo of our flag, we have Latin which says, "Service in peace and in war," and we are very proud of that.

Part of my job is to identify and assess the risks or hazards facing the American people, whether from natural, technological, or attack causes.

Nuclear war is undoubtedly one of those hazards. The threat of nuclear war will not go away by FEMA's ignoring it. It will not go away by wishful thinking of well-intentioned people, and so long as it remains a possibility, it is my responsibility as defined by the Congress in the Federal Civil Defense Act, whose intent with regards to civil defense was reiterated as recently as 1985, to direct the resources of the civil defense program to addressing it.

NATIONAL SECURITY DECISION DIRECTIVE

On February 4 of this year, the President signed a new national security decision directive that set out what we believe to be a credible civil defense strategy for the United States at this time. I have a copy of this policy that I would like to submit for the record.

[The information follows:]

U.S. CIVIL DEFENSE

It is the policy of the United States to have a civil defense capability as an element of our overall national security posture.

PRINCIPLES, CONCEPTS, AND OBJECTIVES

The civil defense program will continue to support all-hazard integrated emergency management at State and local levels, to the extent that this is consistent with and contributes to preparedness of the Nation in the event of an attack, whether by nuclear or non-nuclear means.

The civil defense program must be clearly communicated to the American public.

The civil defense program will provide improved prospects for protection of the population and resources of the Nation in the event of nuclear attack and improved ability to deal with any occurrence, including natural, technological, or other emergency, which seriously degrades or seriously threatens the national security of the United States. The program will emphasize development of a civil defense infrastructure capable of rapid expansion in a national security emergency. The objective of the civil defense program will include:

(1) Population protection capabilities, with the Federal Government providing guidance and assistance to enable State and local governments to develop the requisite plans, systems, and capabilities.

(2) State and local government crisis management capabilities to effectively support the population in national security emergencies.

(3) Information to promote a clear understanding by the public of threats, including nuclear attack, which may affect their localities and on actions they should take to increase their chances of survival.

(4) Information to assist U.S. business and industry in taking measures to protect their work forces and physical assets in national security emergencies.

(5) Voluntary participation by citizens and institutions in community civil defense activities and emphasis on citizen protective actions.

(6) Plans for sustaining survivors and for postattack recovery.

(7) Plans which include provisions both for incremental or gradual mobilization of civil defense capabilities in a period of gradually increasing world tensions, and for a civil defense surge in an international crisis.

IMPLEMENTATION

The Federal Civil Defense Act of 1950, as amended (50 U.S.C. App. 2251 et seq.) provides that responsibility for civil

defense is vested jointly in the Federal Government and the States and their political subdivisions. Accordingly, the U.S. civil defense program will be based on the following:

(1) The Federal Government will focus on guidance to the public and to State and local governments to improve preparedness for national security emergencies. Financial assistance will be provided in cooperation with State and local governments.

(2) The Federal Government will encourage States to develop agreements to furnish mutual aid in the event of an attack or disaster.

(3) The States have the primary responsibility for developing their capabilities for peacetime emergencies and share responsibility for attack preparedness. They should support development of civil defense plans, systems, and capabilities for themselves and their political subdivisions. States will assure that where Federal civil defense funds and assistance are applied to natural and technological disaster preparedness, such use is consistent with, contributes to, and does not detract from attack preparedness.

(4) Local governments have the primary responsibility for developing their capabilities for peacetime emergencies and share responsibility for attack preparedness. They should develop under State guidance the capability to provide protection for their citizens in all emergencies which may affect their communities.

(5) Government at all levels should make information available to citizens on threats, including nuclear attack, which may affect their communities as a basis for individual and family plans and preparations to improve chances of survival.

(6) The program will utilize to the maximum extent the existing facilities and resources of the Federal Government and, with their consent, the facilities of States and political subdivisions thereof, and of private sector organizations and agencies.

Federal funds and assistance for all elements of the civil defense program will be applied to develop capabilities required for attack preparedness and other disasters having national security implications.

Under the general policy guidance of the National Security Council, the Federal Emergency Management Agency will have overall responsibility for development and implementation of civil defense programs authorized and funded under the Civil Defense Act of 1950 as amended. The Federal Emergency Management Agency will emphasize coordination with State governments and their local political subdivisions, as well as with appropriate Federal departments and agencies which are responsible for civil defense concerns within their areas of substantive responsibility.

General BECTON. Briefly, it calls for building on the immense assets of emergency management infrastructure at all levels of government, but particularly at the state and local levels, that the civil defense program has contributed to building for over 30 years.

Using this infrastructure as a foundation, we will build a base from which nuclear attack civil defense remedies can be rapidly expanded going into a national security emergency. Make no mistake that this is not the standing capability that we would like to have if greater resources were available. But it is a strategy that will afford millions of our citizens protection if—and this is an important if—if we, the Congress and the administration, can commit to follow through.

If we can do that, we can honestly assert that this program will fulfill our moral and legal obligation under the Civil Defense Act.

BUDGET HIGHLIGHTS

I would like to briefly highlight the other budget considerations. Our request does not include any recommendations for changes in legislation. However, it does include several significant policy initiatives which will bring increased cost sharing at state and local levels. Examples of this include grants to earthquake and hurricane protection activities, which will require a 50-percent funding sharing for recipients, and the travel component of students' stipends for training at the Emergency Management Institute and National Fire Academy which will be reduced gradually over a 3-year period, shifting the cost of traveling to Emmitsburg to students' sponsors.

Grant activities in the U.S. Fire Administration for fire prevention and arson control are being eliminated based on the judgment that a base has been established and state and local governments and the private sector can now assume full responsibility for and more efficiently execute these activities.

The National Flood Insurance Program continues to work toward self-sufficiency, while funding all administrative costs of the insurance program and the flood plain management program under the National Flood Insurance Fund.

In general, the President's budget request maintains level funding for most FEMA programs with two notable exceptions: first, $30 million additional is being requested for our government preparedness program. This is a classified program which we will be pleased to discuss in closed session.

Second, for the first time, the administration is requesting funds of $80 million for sheltering and feeding the needy. In addition to the basic budget requests, you also have a budget amendment to consider. The amendment submitted for your consideration is an additional amount for modest initiatives which will begin to implement the new civil defense policy.

The amendment requests an additional $20 million for programs and no additional work-years or salaries and expenses funding. In the course of your questioning, we hope to explain the new policy and how we plan to spend additional program funds.

ORGANIZATIONAL STRUCTURE

After almost a year of learning and examining the way FEMA operates, I initiated an evaluation of our organizational structure which included all of the FEMA corporate executives with me this morning.

After carefully considering many recommendations, I recently made decisions to inform you of my intention to realign certain functions within the Agency. Some of these changes are minor and within our ability to execute within the current budget framework and constraints. Other changes are more significant and will not take place without close consultation with the Congress.

Let me briefly describe the most significant changes which are intended. In order to better align our training mission within the Agency, I would like to integrate the diversity of training activities into one program office.

It will provide a closer link between training delivery and requirements of program activities. It will reduce training overhead and maximize the resources available for delivery of both resident and field instruction. The Emergency Management Institute and the National Fire Academy will remain essentially unchanged, while the delivery of training to the emergency management community at all levels of government will be improved.

A task force is currently working out the details for the restructuring of our training management. I have also decided to move the office of the U.S. Fire Administration to FEMA headquarters in Washington from Emmitsburg, Md. This will provide for a closer participation in the corporate life of FEMA and be more accessible to the constituency groups they serve. I will be consolidating functions of three major program directorates into two, thereby centralizing responsibility for civil defense under one accountable manager under State and Local Programs and Support, and programs with federal level focus under a single official for national preparedness.

None of these shifts and this realignment will result in any forced layoff of personnel. We believe we can afford the changes available to us in fiscal year 1987 without adverse effects on our programs. Of course, we will consult with the Congress as we formulate the details necessary to accomplish my intentions.

Our challenge has not diminished. We, at FEMA, are held accountable for more than 125 programs and activities which, in part, account for the relatively large number of witnesses accompanying me this morning. The budget the administration is requesting is what I believe to be essential to fulfill the mission assigned to us, given the overriding priority to keep federal spending within deficit reduction targets.

Again, I appreciate the opportunity to present my request. I have asked my colleagues not to be reluctant to speak up when they have the requisite expertise in a particular area.

Sir, we are ready for your questions.

[The statement and biographical sketches follow:]

STATEMENT OF JULIUS W. BECTON, JR.

Mr. Chairman and Members of the Subcommittee:

We appear before you today to present testimony on the budget request of the Federal Emergency Management Agency (FEMA) for fiscal year 1988.

The total requested for all appropriations is $613,394,000. The outlay request is $694,668,000; and FEMA's full-time equivalent needs are estimated at 2,409. Compared to 1987, appropriations increase by $37,394,000, outlays decrease by $121,163,000, and full-time equivalents increase by 2.

The 1988 budget request for FEMA's operating accounts is $373,623,000, an increase of $20,667,000 above 1987. An increase in Government Preparedness is partially offset by decreases in other activities. The specifics of these changes are detailed in the Budget Justification.

OVERVIEW

Consistent with the statutory goal of meeting the $108 billion deficit target for 1988 as specified in the Balanced Budget and Emergency Deficit Control Act of 1985, FEMA's request, in general, maintains most programs at or slightly below the 1987 level.

The increase of $20,667,000 in the operating programs includes an increase of $30,005,000 for the Federal Preparedness activity offset by reductions in other programs. Significant

policy considerations include proposed State and local cost sharing for earthquake, hurricane, and other natural hazard grants and for student travel stipends at the National Emergency Training Center. The grant activities within the U.S. Fire Administration that can be handled below the Federal level are proposed for elimination. The request also provides funds for various uncontrollable cost increases including the January 1987 cost of living pay adjustment, funds for Agency contributions to the new Federal Employees Retirement System, and within-grade step increases.

The request includes $125,000,000 for replenishment of the Disaster Relief Fund and $80,000,000 for the Emergency Food and Shelter Program. The National Flood Insurance Program moves toward self sufficiency while funding all costs associated with the program.

In line with the Administration's policy of requesting two-year appropriations for defense related activities, FEMA requests a total of $267,414,000 for 1989 for the Civil Defense and Federal Preparedness activities.

CIVIL DEFENSE

The request for Civil Defense Programs is $134,806,000 and 489 workyears, a decrease of $4,585,000 from the 1987 current level. Reductions in Telecommunications and Warning programs for one-time system enhancement costs in 1987 are partially offset by other enhancements and improved system maintenance in the State and Local Direction, Control and Warning Program. The Training and Education Program features reduced funding for

student stipends which results from the first year of a three-year phase in of State and local cost sharing for training of State and local students in emergency management techniques. The 1988 request provides a maintenance level of Civil Defense funding, providing a base for making improvements necessary to protect the population in a time of crisis.

The President signed National Security Decision Directive (NSDD) 259 on February 4, 1987. The new goals outlined in this NSDD make two basic changes: planning to surge the infrastructure to meet Civil Defense requirements and elimination of deadlines for completion of these goals. The new NSDD emphasizes maintaining and strengthening the existing emergency management infrastructure while giving priority to two areas: State and local crisis management and improvement of population protection capabilities through voluntary self-help programs and emergency public information. Crisis management involves improving the survivability of our constitutional fabric of government, including the ability to communicate among governments and to the public. Improved population protection capabilities, including education and distribution of information on dealing with emergencies of all types, will improve the abilities of the citizenry to avoid injury or death in times of emergency. Capabilities developed for attack preparedness may be used for preparing for, and providing emergency assistance in response to, peacetime disasters to the extent such use is consistent with, contributes to, and does not detract from attack-related preparedness. We are currently evaluating the level of resources necessary to carry out the new NSDD.

COMPREHENSIVE EMERGENCY PREPAREDNESS PLANNING

The request for Comprehensive Emergency Preparedness Planning is $8,737,000 and 61 workyears, a decrease of $758,000 and 2 workyears from the 1987 current level. The 1988 program features 50/50 cost sharing by State and local governments in all natural hazard reduction activities, making these grants consistent with FEMA practice in other areas of the budget. The Comprehensive Emergency Preparedness Planning activity is designed to enhance State and local capabilities to prepare for, respond to, and mitigate disasters and emergencies arising from earthquakes, hurricanes, hazardous materials incidents, and unsafe dams. FEMA is the lead agency for the National Earthquake Hazard Reduction Program. Incidents such as the chemical plant accident in Bhopal, India and the earthquake in Mexico City highlight the importance of preparation for disasters and emergencies arising from natural and man-made causes.

RADIOLOGICAL EMERGENCY PREPAREDNESS

The request for Radiological Emergency Preparedness is 70 workyears and $7,592,000, an increase of $205,000 over 1987. The Administration again intends to propose legislation to collect fees from the commercial nuclear facilities for 50 percent of the FEMA costs associated with offsite emergency planning. The fees to be collected would be reimbursed to the Treasury and therefore would not affect this appropriation request. These fees would be collected at the same rate and deposited in the same manner that is proposed for the recovery of the costs of the Nuclear Regulatory Commission.

FEDERAL PREPAREDNESS

The request for Federal Preparedness is $196,819,000 and 895 workyears, an increase of $30,005,000 and 26 workyears over 1987. The major portion of this increase is in the Government Preparedness program with minor increases for uncontrollable costs in the other programs.

TRAINING AND FIRE PROGRAMS

The request for Training and Fire Programs is $15,576,000 and 97 workyears, a decrease of $4,762,000 and 4 workyears. As discussed below, this reduction reflects the first year of a three-year phase in of cost sharing by State and local governments for training their employees at the National Emergency Training Center. In addition, the request includes the elimination of grants to State, local, and volunteer groups for fire prevention and arson control because these activities can be handled below the Federal level.

United States Fire Administration

The 1988 request proposes eliminating grants to State, local and volunteer groups for fire prevention and arson control because these activities can be handled below the Federal level. However, in the 1988 request, funds are provided for those functions in which there is a Federal role. For example, in 1988 funds will support the improvement of fire service management initiatives; dissemination of fire service information through networking; research to develop superior protective clothing, tools, and equipment to allow firefighters

to operate more safely and efficiently in emergencies; analysis of major fires such as the recent hotel fire in Puerto Rico; and strengthening the National Fire Incident Reporting System to ensure effective fire data collection on a national basis.

Cost Sharing for Training

For 1988, FEMA again proposes that State and local governments begin to share the costs of providing training to their employees at the National Emergency Training Center but with a three-year phase-in period. In this first year of a three-year initiative, State and local governments will pay a portion of the costs for their students to travel to the Emmitsburg campus. By the third year, FEMA proposes that the State and local governments will pay the cost of travel and a lodging fee for each student. The Federal government will continue to pay all other costs of the resident programs at Emmitsburg including instructors' salaries, course materials, course development, site administration, and the like. By phasing in cost sharing over three years, State and local governments will have more time to plan and budget for these costs associated with their students.

FLOOD PLAIN MANAGEMENT AND NATIONAL FLOOD INSURANCE FUND

In 1988, FEMA again proposes to make the National Flood Insurance Fund self-supporting and to fund both the Flood Plain Management Program and the administrative costs associated with the National Flood Insurance Program from the National Flood

Insurance Fund. This is identical to the 1987 proposal except that the Fund will be self-supporting for the average loss year by 1988 instead of in 1987.

For 1987, the Congress limited the flood insurance rate increase to ten percent annualized, while transferring funds from the National Flood Insurance Fund to support Flood Plain Management and administrative costs. In order to achieve the goal of making the Fund self-supporting while funding all costs associated with providing flood insurance from the Fund, the estimates for 1988 include a maximum premium increase of approximately 17 percent. No appropriation is requested in 1988 for debt payment.

MANAGEMENT AND ADMINISTRATION

The request for Management and Administration is $34,771,000 and 367 workyears, an increase of $1,727,000 over 1987. The increase includes funds for various uncontrollable cost increases such as payments to the Department of Labor in conformance with the Federal Employees Compensation Act and funds to provide administrative support for exercises of emergency preparedness plans.

NATIONAL INSURANCE DEVELOPMENT FUND

The crime insurance program is proposed for termination on September 30, 1988. Resources of 4 workyears and $14,547,000 in budget authority are requested in 1988 to close out policies.

DISASTER RELIEF

The 1988 appropriation request of $125,000,000 assumes an obligational level of $250,000,000, an amount required for a year with an average level of disaster activity. FEMA will continue to pursue reforms in the Disaster Assistance Program through close consultation with State and local governments. However, any agreed upon changes will not result in budget reductions before fiscal year 1989.

The recent reduction of $57,475,000 in the Disaster Relief Fund by P.L. 100-6 and the high level of disaster activity in the first quarter of fiscal year 1987 may deplete the Fund this fiscal year. As a result, there may not be sufficient funds carried forward to 1988 to meet "average" year requirements and a supplemental appropriation may be required.

EMERGENCY FOOD AND SHELTER

FEMA is requesting $80,000,000 to continue to channel emergency support to the homeless through the National Board of major private charities. In order to establish a consolidated program for distributing food and shelter aid to the needy, the $80,000,000 request level covers an amount equal to the $70,000,000 initially appropriated in 1987 plus $10,000,000 in the 1987 "Shelter Programs" appropriation in the Department of Housing and Urban Development.

Thank you, Mr. Chairman. My staff and I will be pleased to answer any questions.

Biographical Sketch of Julius W. Becton, Jr.

UNITED STATES ARMY
(RETIRED)

Lieutenant General Julius W. Becton, Jr., was born and reared in Bryn Mawr, Pennsylvania. He enlisted in the Army Air Corps Enlisted Reserves in December 1943 and was called to active duty in July 1944. Much of General Becton's service has been with combat units. He received his commission from the Infantry Officers Candidate School at Fort Benning, Georgia, in August 1945. In 1972 he was promoted to Brigadier General. He commanded the legendary 1st Cavalry Division from February 1975 to November 1976. His last command was VII U.S. Corps in Germany from October 1978 to June 1981. He completed his active service on 31 August 1983 as the Deputy Commanding General (Training) in the U.S. Army Training and Doctrine Command (TRADOC) and the first Army Inspector of Training since Major General von Steuben in 1775.

His military schooling includes the Basic, Communications, and Advanced Courses of the Infantry School, the Command and General Staff College, the Armed Forces Staff College, the Institute for Defense Analyses, and the National War College. He earned a Bachelor of Science degree from Prairie View A&M College in mathematics and a Master of Arts degree from the University of Maryland in economics. He has received many honors to include the honorary degree of Doctor of Laws from Huston-Tillotson College in Texas. He is a distinguished member of the Infantry Officer Candidate Hall of Fame; a Knight in the Military and Hospitaler Order of St. John of Jerusalem, Knights of Malta; a member of the Board of Visitors to the Interdenominational Theological Center; and listed in WHO'S WHO IN AMERICA, as well as EBONY MAGAZINE's 100 Most Influential Blacks in America. He is a member of the Board of Governors of the American National Red Cross and the USO World Board of Governors. His many military decorations include the Distinguished Service Medal, two Silver Stars, two Legions of Merit, the Distinguished Flying Cross, and The Knight Commanders Cross (Badge and Star) of the Order of Merit awarded by the Federal Republic of Germany.

In January 1984, he became the Director of the Office of U.S. Foreign Disaster Assistance, Agency for International Development, which is charged with coordinating the provision of all U.S. Government foreign disaster assistance.

He is at present the Director of the Federal Emergency Management Agency (FEMA) which is the central point of contact within the federal government for a wide range of emergency management activities in both peace and war.

Lieutenant General Becton is married to the former Louise Thornton, and they have four daughters, one son, and four grandchildren.

Biographical Sketch of David McLoughlin

David McLoughlin is the Deputy Associate Director for State and Local Programs and Support of the Federal Emergency Management Agency (FEMA). This office administers FEMA emergency planning, preparedness and response programs impacting on State and local governments.

Under the President's Reorganization Plan No. 3, approved by Congress, FEMA consolidated in one agency closely allied Federal programs involved with preparedness, mitigation and response to national emergencies ranging from natural and manmade disasters to nuclear attack.

Mr. McLoughlin joined the Federal Government in 1957 as an instructor in the Federal Civil Defense Administration's Chemical/Biological/ Radiological Defense School at Battle Creek, Michigan. In 1962, he became Director of the Special Training Department of the Office of Civil Defense Staff College. He was named Deputy Director, Region IV, of the Defense Civil Preparedness Agency in Battle Creek in 1971.

From 1976 until his appointment as FEMA Acting Director of Training and Education, he served as planning staff supervisor on terrorism for the Federal Preparedness Agency, Washington, D.C. He subsequently served as the Director of the Office of Emergency Operations within State and Local Programs before being named Deputy Associate Director.

Mr. McLoughlin's service includes participation in two National Security Council studies related to the role of civil preparedness in U.S. strategic posture. He was also selected to be a member of the Presidential Reorganization Project which resulted in the creation of the Federal Emergency Management Agency.

Graduated with a Bachelor of Science degree from the University of Illinois, he received his Master of Arts and Doctor of Education degrees from Western Michigan University.

Mr. McLoughlin was born February 22, 1934, in Forrest, Illinois, and resides in Annandale, Virginia.

Biographical Sketch of George H. Orrell

As the Comptroller of the Federal Emergency Management Agency, (FEMA) George H. Orrell is the FEMA Director's principal staff advisor on financial, budget, manpower, and organizational management.

Mr. Orrell graduated from the Citadel, Charleston, South Carolina, in 1954 with a BS in Civil Engineering. After completing a year of graduate study in management at the University of Chicago in 1966, he was appointed a Fellow of the National Institute of Public Affairs, a Ford Foundation activity.

Mr. Orrell served on active duty for 2 years as an officer in the U.S. Army Corps of Engineers and was in the Army Reserve from 1956 to 1968.

From 1956 to 1960, Mr. Orrell worked as a Civil Engineer with the U.S. Army Engineer District, Wilmington, North Carolina. Between 1960 and 1967, he held various staff positions with the Strategic Planning Group and Engineer Strategic Studies Group, U.S. Army Corps of Engineers in Washington, D.C. Mr. Orrell was appointed Technical Director of the U.S. Army Engineer Studies Center in 1967. He transferred to FEMA in March 1982 to serve as Chief, Industrial Protection Division, Office of Civil Preparedness. In March 1983, he was appointed Deputy Associate Director of the National Preparedness Programs Directorate. In February 1987 he was appointed as Comptroller of FEMA.

During his career, Mr. Orrell has received the Army R&D Award in 1964; the Army Career Education Award in 1965; 13 Army Commendations for Outstanding Performance from 1956 to 1979; the Department of Army Decoration for Meritorious Civilian Service in 1979; and the FEMA Certificate of Outstanding Performance in 1982, 1983, and in 1986. Mr. Orrell received the FEMA Senior Executive Service Award for "Distinguished Leadership and Outstanding Performance" in 1984 and 1985. He was promoted to the GS-16 Supergrade level in 1974, joined the Senior Executive Service in 1979 at the ES level 4 and was promoted to ES Level 5 in 1983.

Biographical Sketch of William C. Tidball

William C. Tidball serves as the Chief of Staff for the Director of the Federal Emergency Management Agency (FEMA). He has served in that position since January, 1986.

Prior to the assignment to his present position, Mr. Tidball served as the Deputy Regional Director for FEMA's Region VI Office located in Denton, Texas. Region VI serves as the FEMA Headquarters for the States of Arkansas, Louisiana, New Mexico, Oklahoma and Texas.

Mr. Tidball, a Federal executive for 21 years, has served as the FEMA Region VI Division Director for Planning and Preparedness and in several capacities with FEMA predecessor agencies in the Dallas/Fort Worth area including: Deputy Regional Director for the Federal Disaster Assistance Administration, Assistant Regional Director for Government Preparedness for the Office of Emergency Preparedness, and Regional Public Information Officer for the Office of Civil Defense.

During his career, Tidball has worked in a variety of emergency activities including the Wage-Price Freeze in 1971, flood disasters from Johnstown, Pennsylvania to Phoenix, Arizona, hurricanes Camille, Celia and Agnes and served as the on-scene Federal Coordinator at Fort Chaffee, Arkansas during the exodus of Cubans in 1980.

Biographical Sketch of Caesar A. Roy

Caesar A. Roy is the Deputy Associate Director for Training and Fire Programs. He is located at the National Emergency Training Center in Emmitsburg, Maryland.

His previous position was Regional Director for Region II in the Food and Drug Administration, covering the States of New York and New Jersey, the Commonwealth of Puerto Rico and the Virgin Islands.

In that position, he was responsible for the direction and coordination of FDA activities in five district offices and a Laboratory Division, with a total combined staff of about 500 employees. He was also the primary advisor and coordinator on FDA matters to other Federal agencies and state counterparts. He assumed the position as Regional Director in August 1979.

Mr. Roy is a native of Jacksonville, Texas, where he graduated with a BS degree in Chemistry from Prairie View A&M College of Texas in 1954. He did graduate work at Texas Southern University, Houston, Texas, and the University of Texas at Austin, Texas.

He was employed for six years as an instructor in Chemistry and Physical Science on the high school, junior college and college level in Texas.

He is a graduate of FDA's "Executive Fellows" program and a charter member of the "Senior Executive Service."

He has traveled extensively to Japan, India, Canada, throughout the Carribean and Central America to speak at workshops, seminars, etc., regarding proper management of FDA regulated industries in the host country.

His professional affiliations include membership in:

- -- Senior Executives Association
- -- National Association of Food and Drug Officials
- -- Central Atlantic States Association of Food and Drug Officials
- -- NAACP
- -- National Urban League
- -- National Organization of Black Chemists and Chemical Engineers
- -- National Interstate Shellfish Sanitation Conference

Mr. Roy is a resident of Triangle, Virginia and is married and the father of two children.

Biographical Sketch of Harold T. Duryee

Harold T. Duryee is administrator of the Federal Insurance Administration (FIA), and, as such, he has oversight responsibilities for operation of the government's National Flood Insurance Program (NFIP). Under the program, coverage against flood losses is available to property owners in communities that have agreed to implement and maintain floodplain management ordinances and practices.

Currently, the flood insurance program has over two million policyholders with more than $135 billion in coverage in nearly 18,000 communities throughout the country. FIA, part of the Federal Emergency Management Agency, is responsible for both the insurance aspects of the program and the floodplain management functions.

The position of Administrator is filled by nomination of the President and requires Senate confirmation. Mr. Duryee joined FIA in March 1984 as special assistant to the administrator and has been a member of FIA's senior management policy group since. Prior to his FIA appointment, he was deputy administrator of the Ohio Bureau of Workers' Compensation.

He spent more than seven years as executive assistant to the chairman of the Ohio Republican State Committee. While with the committee, Mr. Duryee served five years as legislative and field director.

Mr. Duryee's insurance experience was gained over nearly 10 years with Nationwide Insurance Company, where he was manager of the Claims Services Division in the company's northern Ohio regional office.

After graduating with a Bachelor of Arts in Political Science from Kenyon College, Gambier, Ohio, Mr. Duryee spent five years as Mahoning Valley Field Representative and public relations advisor to the Boy Scouts of America.

Mr. Duryee has been involved in political activities at the local, state, and national levels, and served as campaign manager for three candidates for the U.S. House of Representatives.

The Ohio native has made significant contributions to civic and government entities. He was a member of the Ohio Elections Commission for four years and vice-chairman of the North Canton City Planning Commission for nearly 10 years. He also served as secretary of the North Canton Area Development Committee and chairman of the North Canton City Charter Commission. As a result of these efforts, he received both the North Canton Rotary Civic Affairs Award and the North Canton Jaycees Distinguished Service Award.

Before moving to Washington, where he and his wife live on Capitol Hill, Mr. Duryee was active in numerous professional, civic and social organizations.

Biographical Sketch of Dennis H. Kwiatkowski

Dennis H. Kwiatkowski is the Chief, Individual Assistance Division, Disaster Assistance Programs, State and Local Programs and Support Directorate, Federal Emergency Management Agency (FEMA). He is responsible for the administration, policy development, coordination and implementation of programs that provide assistance to individuals in Presidentially declared emergency and disaster situations, under P.L. 93-288. Mr. Kwiatkowski's responsibilities also include actions involving the temporary and permanent relocation of individuals under Superfund (CERCLA) authorities. He is Chairman of the National Emergency Food and Shelter Board, responsible for the distribution of over $310 million of assistance to needy people since passage of the Job Stimulus Bill, P.L. 98-8, in the spring of 1983. Prior to his assignment as Chief, Individual Assistance Division and Chairman of the National Emergency Food and Shelter Board, he was the Director, Regional Operations, FEMA Headquarters. As Director of Regional Operations, he was responsible for oversight and coordination of policies affecting FEMA's field staff and programs.

Mr. Kwiatkowski has extensive experience in administration and Federal programs at the Regional level. Before joining FEMA, Mr. Kwiatkowski served with the Federal Disaster Assistance Administration as a Regional Disaster Programs Officer with the Department of Housing and Urban Development as the Director of General Services and with the Defense Supply Agency as Contract Administrator.

Mr. Kwiatkowski was born July 1945, in Chicago, Illinois. He graduated from DePaul University in 1967 with a Bachelor of Science in Commerce degree, majoring in Marketing and Management. He is married and has four children.

Biographical Sketch of Clyde A. Bragdon, Jr.

Clyde A. Bragdon, Jr., the Administrator, United States Fire Administration, was nominated for this position by President Ronald Reagan on April 18, 1984, and confirmed by the United States Senate on June 15, 1984. Chief Bragdon retired in March 1984 after nearly thirty-two years in the fire service--the last twenty of which were in management positions.

Chief Bragdon, at the time of his retirement, was County Forester and Fire Warden and Fire Chief of the County of Los Angeles. In addition, he was Fire Chief of the forty-four cities served by the Los Angeles County Fire Department.

He was an active member and officer in several local, state and national professional organizations. He is a graduate of the University of Southern California School of Public Administration.

As Administrator of the U.S. Fire Administration, a part of the Federal Emergency Management Agency, he is responsible for administering the delegated provisions of the Fire Prevention and Control Act, working in concert with State and local governments and private sector organizations through programs designed to reduce this Nation's fire deaths and injuries and property and economic losses from fire.

A native of Massachusetts and long-time resident of California, he and his wife Dal, currently reside in Frederick, Maryland.

Biographical Sketch of Barbara A. Jacobik

Barbara A. Jacobik was born in Providence, Rhode Island, on February 23, 1951. She received a BA degree in Biology from the University of Connecticut in 1972.

Mrs. Jacobik began her career with the Federal Government in 1975 as a Budget Analyst with the National Bureau of Standards in the Department of Commerce. In 1976, she transferred to the Regional Development Program, also in the Department of Commerce, where she continued to work as a Budget Analyst until the birth of her second child in 1981. In 1983, she began her career with the Federal Emergency Management Agency where she served as a Budget Analyst, Supervisory Budget Analyst, and as Acting Budget Officer, from July, 1985 until January 19, 1986, when she became the Budget Officer on a permanent basis.

Biographical Sketch of George Woloshyn

George Woloshyn is Associate Director of the Federal Emergency Management Agency (FEMA). As such, he is directly responsible for its Emergency Operations Directorate, FEMA's largest program activity. He was appointed to this position by the President and confirmed by the Senate in the summer of 1986.

Prior to joining FEMA, Mr. Woloshyn served as Associate Director of the U.S. Office of Personnel Management (OPM). At OPM he headed up the Compliance and Investigations Group, with responsibility for government-wide personnel security programs, and the enforcement of the civil service laws, rules, and guidelines. From February 1982 to early 1983 he served as the Agency's Deputy General Counsel.

While at OPM he was appointed to three Boards, and was collaterally responsible for the agency's emergency preparedness capabilities. He served as a member of the Foreign Service Board, the Board of Examiners of the Foreign Service, and the Board of Directors of the Federal Law Enforcement Training Center in Glynco, Georgia.

Before entering Government service in 1982 Mr. Woloshyn was employed with the National Railroad Passenger Corp (AMTRAK) as its Manager of Industrial Development, responsible for the sale, lease, and development of half a billion dollars worth of corporate property. He joined AMTRAK in 1978 after 4 years of practice as an attorney, with membership in the New York, Maryland, and Federal Bars.

He presently serves as an active Naval Reserve intelligence officer with the rank of Lt. Commander. Before joining the Naval Reserves, he had attained the rank of Army Captain, first as a medical service officer and later as a JAG officer.

Mr. Woloshyn graduated from Fordham College with a B.S. in 1965; from the Bernard Barach Graduate School of Business (CUNY) with an M.B.A. in 1972; and from Fordham Law School with a J.D. in 1974. He received three scholarships in the course of his college and law school education.

A native of New York City, Mr. Woloshyn lives with his wife and two children in Falls Church, Virginia.

Biographical Sketch of Spence W. Perry

Spence W. Perry was born in Jacksonville, Florida, on March 1, 1942. He attended the Bolles Preparatory School and graduated from Harvard College (B.A 1963) and Duke Law School (J.D. 1966).

From 1966-1969 he was a lieutenant on active duty in the United States Navy. His active duty included a tour in Saigon RVN as Assistant Staff Judge Advocate for International Law Military Assistance Command (MACV).

On his release from active duty, Mr. Perry practiced law with the firm of Sullivan and Worcester in Boston, Mass. In 1971 he joined the staff of the Office of Emergency Preparedness. At OEP he served as Deputy Director of the Office of Exceptions and Exemptions during the 1971 wage-price freeze and was Executive Secretary of the Pay Board.

From 1973-1974 he was General Counsel of an oil industry trade group in Washington, D.C. In 1975 he became director of allocation and price regulations for the Federal Energy Administration. In 1976 he joined the General Services Administration as Assistant General Counsel for Regulatory Law. In this position he was responsiible for GSA's nationwide litigation of rate cases before State and Federal regulatory commissions in the electric and gas, transportation and telecommunications fields.

In 1980 he joined the Department of Energy as Deputy Director of Regulatory Intervention and continued to be involved in regulatory litigation.

In 1981 Mr. Perry joined the Federal Emergency Management Agency as Associate General Counsel for Emergency Planning and Response. In this job Mr. Perry was responsble for program law in such areas as disaster assistance, national security, and litigation of the Agency's nuclear power plant licensing matters. In April of 1985 Mr. Perry was selected as FEMA's member of the class of 1986 at the Industrial College of the Armed Forces.

In September 1985, Mr. Perry was named General Counsel of FEMA. He is an adjunct faculty member at the Industrial College of the Armed Forces.

Mr. Perry resides in Petersville, Maryland. He is a frequent contributor to scholarly journals on topics ranging from economic regulation to the Vietnam conflict, is active in the Episcopal Church and is a commander in the Judge Advocate General's corps of the United States Naval Reserve.

Biographical Sketch of Paul K. Krueger

Paul K. Krueger is the Deputy Associate Director for National Preparedness Programs at the Federal Emergency Management Agency (FEMA). Prior to this assignment, he was the Director of Congressional Relations and the principal advisor to the Director of FEMA for Congressional activities.

Mr. Krueger joined the Federal Government in 1970 as an international trade and energy policy officer with the Department of Commerce. From 1975 to 1979 he served as deputy, and then acting chief, of the Stockpile Policy and Objectives Division of the Federal Preparedness Agency, which was responsible for establishing goals and policies for the National Defense Stockpile.

In 1980 Mr. Krueger was appointed Assistant Associate Director of FEMA for Resources Preparedness. In this position he directed the agency's mobilization preparedness activities for economic, industrial, and natural resource programs, including the stockpiling of strategic and critical materials.

Recognized as an expert in the materials and resources preparedness fields, Mr. Krueger has been invited to testify before the Congress more than 30 times. He has addressed over 50 industrial seminars or other groups, and has been a visiting lecturer at the United States Naval Academy and the National Defense University. An author on a variety of topics, Mr. Krueger has written for the American Institute of Mining Engineers, the American Statistical Association, and the American Economics Association; he has had numerous professional papers published by the Department of Commerce and the Federal Emergency Management Agency.

Prior to government service, Mr. Krueger held technical positions with the International Nickel Company and the Goodyear Tire and Rubber Company. He also served in the U.S. Army as an intelligence officer in Vietnam. Mr. Krueger earned his Bachelor's degree from the University of Georgia in 1970. He resides in Arlington, Virginia, with his wife, Rosemary, and son, Richard.

TWO-YEAR APPROPRIATIONS

Senator Proxmire. Thank you very much, General, for a fine opening statement. We very much appreciate it. I would appreciate it if you would keep your responses as concise as possible, because we have a lot of questions to cover.

Senator Domenici, as you know, did such a fine job as head of the Budget Committee. He is now ranking member of the committee and has suggested that we explore the possibility of passing 2-year appropriation bills. Would that approach create any particular problem for your Agency, or do you see a benefit in having to justify your budget only once every 2 years?

General Becton. We would look forward to that, sir.

Senator Proxmire. You prefer that?

General Becton. I would.

Senator Proxmire. You don't see any particular difficulties in complying with that requirement?

General BECTON. I do not.

Do the members of my staff?

Mr. MCLOUGHLIN. The only thing might be a disaster relief supplemental if we had a particularly bad disaster year.

General BECTON. There would be recognition of the fact that we cannot predict the number of disasters we will have, and we will come back.

Senator PROXMIRE. Approximately what proportion of your annual appropriation request do you consider to be simply a repeat of the prior year's submission?

General BECTON. Could we submit that for the record, sir?

Senator PROXMIRE. Very good.

[The information follows:]

In terms of resource requirements, those FEMA programs with smaller appropriations have remained fairly constant over the past several years. FEMA's requests to Congress will probably reflect stable resource requirements for them for the next few years.

Senator PROXMIRE. Would you expect to realize any budget savings if you could plan on a 2-year basis? If so, would you estimate what the savings would be? You can submit that for the record.

General BECTON. I don't think there would be any savings, sir.

Senator PROXMIRE. All right. You might reconsider that when you submit answers to the other questions, because we would like to know that. That is certainly one of the elements that would persuade us to move ahead.

CIVIL DEFENSE AMENDMENT

Now, let me get into the civil defense program. You are requesting about $135 million for civil defense next year. That is a decrease of about $4.6 million below the current level of funding. However, we understand that a budget amendment that would increase this request by $20 million in 1988 is working its way through the system.

A budget amount amendment of that size would represent a significant increase, about 15 percent above the request you submitted in January, just 2 months ago. Of course, this is a time when we are trying to cut everything. Even excellent programs that we approve of we find that we have to cut because of the Gramm-Rudman-Hollings Deficit Reduction Act. We have no choice. Why wasn't the $20 million included in your initial request?

General BECTON. Sir, at the time that we sent in our initial request we did not have a revised policy statement from the President.

President Reagan did sign a new national security decision directive on February 4, which reemphasized the importance of the civil defense program. With that reemphasis, we then submitted the amendment.

EMERGENCY OPERATING CENTERS

Senator PROXMIRE. I am going to explore with you today some of the unanswered questions I raised in my May 8 letter of last year to you. According to your justification for the $20 million civil defense initia-

tive, you want $1.35 million for fallout shelters for state and local officials.

You call them emergency operating centers, but in effect, aren't they just shelters to protect state and local officials from the ravages of nuclear war?

General BECTON. No, sir, they are not, and I would like to turn to my Deputy Associate Director for State and Local Programs and Support for that. We are talking about crisis management capabilities from which people who would normally carry out the functions of government can operate.

David?

Mr. MCLOUGHLIN. Senator, one of the two thrusts of the new focused civil defense program is crisis management. One key part of a crisis management capability is emergency operating centers.

These are centers where local officials would gather, analyze data, and be able to take actions to assist the population in survival. It would include emergency communications; it would include linkages to the emergency broadcast system so that information could be broadcast to the people.

Senator PROXMIRE. Would this protect the local officials who would be the crisis managers? Would this protect them from fallout?

Mr. MCLOUGHLIN. It would protect them from fallout; yes, sir. They would be about 100 times better protected from the fallout radiation than outside.

Senator PROXMIRE. Would it protect them from EMP?

Mr. MCLOUGHLIN. We are including EMP protection in them, and we have about 150 of them that are so protected.

Senator PROXMIRE. The officials would survive, but they wouldn't have any constituents left.

Mr. MCLOUGHLIN. Senator, we have surveyed about 1.6 million fallout shelters spaces in the country. There is a significant fallout shelter space built into existing buildings.

We probably are in an excellent fallout shelter, well protected, right here in this building.

Senator PROXMIRE. I wonder.

Mr. MCLOUGHLIN. I know why you laugh, because it is in Washington, DC. I only use this as an example. If this building were some place outside Washington, DC, it would have significant fallout protection and that is what we are identifying.

Senator PROXMIRE. If we have that, why do we need to build more? Why do we need these additional funds?

Mr. MCLOUGHLIN. Sir, what we are talking about with the additional funds are more emergency operating centers for key governmental officials to operate from. Adequate numbers are generally not available right now.

Many local governments do not operate out of a single facility that is protected from fallout. They do not have the emergency communications located in protected facilities.

VOLUNTEER/SELF-HELP PROGRAM

Senator PROXMIRE. This new request includes $4 million for volunteer activities and information guides for the public. So you are proposing to spend $4 million on self-help protection for the rest of the population; is that right?

Mr. MCLOUGHLIN. That is correct. Remember, though, Senator, that the new civil defense program will be more limited in scope. Since we are not able to fund a full-scale civil defense program, we must rely on surging a portion of the program. We have to target priorities. The fallout shelters will still be there and one of the self-help elements is to be sure that they are used adequately for survival.

POPULATION PROTECTION

Senator PROXMIRE. Let me ask you a question, and if you think it is loaded, you may be right, but you might unload it and show how you are unloading it. In effect, you are asking for $20 million to begin a new civil defense plan, which is essentially the same plan as reported in the press last May. You want to spend money to protect public officials but leave the public to help itself; is that correct? If not, why?

Mr. MCLOUGHLIN. Senator, that is not correct. Respectfully, it is not correct.

Senator PROXMIRE. All right.

Mr. MCLOUGHLIN. There are only two ways to protect the population: you either protect them in place or you evacuate them.

Senator PROXMIRE. Well, there are other ways of protecting the population. Arms control is one; deterrent is, of course, another. If we have a nuclear war, it just seems to many of us that that is it. We are told by the National Academy of Science that if 1 percent, 1 percent of the Soviet strategic missiles should strike this country—that is only 100 out of their 10,000—that there would instantly be between 35 and 55 million dead Americans.

There is no SDI or other system that anyone argues that would prevent 99 percent of the missiles coming through. The only conclusion that I can draw from that is that if we have a nuclear war, we are dead.

General BECTON. Senator, may I respond to that?

Senator PROXMIRE. Yes, sir.

General BECTON. I share your concern about arms control and disarmament. I spent almost 40 years wearing a uniform, and I don't like war any better than anyone else. But the charter given to me by the President tells me to execute whatever protection we can to protect the population and its resources. I take that charter very seriously.

My mission in FEMA is not to bring about arms control; my mission in FEMA is to provide protection for the American public.

Senator PROXMIRE. The bottom line is, you are giving fallout shelters to public officials and instructional guides to the public. Isn't that what it amounts to?

Mr. MCLOUGHLIN. Senator, that is not at all accurate. Please let me take just a moment to explain. We have, as I said, defined in this coun-

try over the last two decades 1.6 million facilities that have well over 200 million fallout shelter spaces. We have also identified a number of facilities that can be quickly upgraded to provide additional shelter.

What we have been doing over this two-decade period is to try to provide for plans to use these fallout shelters for the protection of the public. Any time people have to survive in as hostile an environment as we could expect in nuclear war, they have to have guidance and direction. They also need to have key governmental officials protected in order to provide guidance to them.

COMPARISON WITH SOVIET CIVIL DEFENSE

Senator PROXMIRE. My time is about up, so let me just ask one more question, and I will yield to Senator Hatfield. Let me read a 1986 passage from the Defense Department's 1986 edition of Soviet Military Power which describes the Soviet civil defense system. That report says, and I quote now:

> Soviet leaders and managers at all levels of the government and Communist Party are provided hardened alternate command posts located well away from urban centers.

Isn't that exactly what you are proposing for this budget request, to build fallout shelters like the Soviets build to protect government leaders during a time of attack? How does your plan differ from the Soviet plan to protect its leadership elite?

Mr. MCLOUGHLIN. Senator, there are marked differences in the two. It is true that the Soviets are building the type of shelters you reference. Those are blast shelters for their key officials.

The type of shelters that we are talking about, the type of emergency operating center which has fallout protection built into it, is not adequate to provide for any kind of survival in a high-risk area. It will simply not do that. It has to be outside the risk area in order for the people to survive. The difference is blast versus fallout protection.

General BECTON. Sir, I also would add that the same EOC's are used for other types of——

Senator PROXMIRE. Let me just interrupt to say that it is my understanding that these, in many cases, would be outside the risk area, too.

Mr. MCLOUGHLIN. The Soviet blast shelters?

Senator PROXMIRE. The U.S. blast shelters, the ones you are building—not blast shelters, I beg your pardon, you are not building blast shelters; you are building fallout shelters. They would be outside the risk areas.

Mr. MCLOUGHLIN. They would need to be outside the blast areas to survive.

Senator PROXMIRE. The survivors would be public officials; politicians would survive.

Senator HATFIELD. What is so bad about that?

General BECTON. The survivors would be radio dispatchers.

Senator PROXMIRE. Senator Hatfield said, when politicians would survive, "What is so bad about that?" [Laughter.]

Nobody has been more out in front than the Senator. Senator Hatfield has been on this, and it is a great honor to have him here this morning. He, as you know, is the former chairman of the Appropriations Committee, where I think he has done as fine a job as any chairman in the 30 years I have been in the Senate.

I am very happy to yield to my good friend and colleague, Senator Hatfield.

CIVIL DEFENSE EXERCISE

Senator HATFIELD. Thank you, Mr. Chairman. I appreciate your kind remarks.

Following up on the questions—and General Becton, it is a pleasure to welcome you here today, and your associates. I would like to raise a situation that we are confronting out in the Northwest, and that is that the Governors of Oregon and Washington, Governor Goldschmidt and Governor Gardner, have refused to join in the civil defense exercise as set up by FEMA to assume a situation of an all-out Soviet attack on our area, 48 nuclear bombs being dropped in the Pacific Northwest.

The Governors of the two states have indicated very clearly that they do not want to take part in this to give credence to a scenario that implies that an attack of the Soviet Union is the most plausible threat to our security or that a full-scale nuclear attack is survivable, as you have indicated. Now, because of the refusal to participate in this particular exercise, FEMA has communicated to the two states, or at least to Oregon, that they will withhold all but $52,000 of a $1.14 million allotment to the state for civil defense and protecting the people against potential disasters of various kinds.

Let me add, Mr. Chairman, and General, as you perhaps know, that the Governor of our state has indicated a willingness to participate and to help create an alternative kind of exercise to test the civil defense systems. They would be based upon other situations such as a terrorist attack, with or without nuclear weapons; such as a fallout from Hanford reactor; or sabotage created by either sabotage or other problems; a natural disaster. Having been a former Governor dealing with two natural disasters in my 8 years, a rather comprehensive flood and one of what we refer to as a Columbus Day storm, I know the importance of those systems under natural disaster situations, or a combination of those various things.

The withdrawal of these funds really threatens the entire civil defense system of our state. General, I have two questions or so based upon that brief outline of our problem.

I have a fact sheet here that was sent out from your Office, the Office of Congressional Relations, in which we have some information. Also I have a second document, Mr. Chairman, that I would like to have entered into the record at this time.

Senator PROXMIRE. Without objection, it will be printed in full.

[The information follows:]

Letter From Cory Streisinger, Legal Counsel to the Governor of Oregon

February 20, 1987

Mr. William H. Mayer
Regional Director
Federal Emergency Management Agency
Region X, Federal Regional Center
130 - 228th Street S.W.
Bothell, Washington 98011

Dear Bill,

This letter will confirm the discussions held on February 17 and 18, 1987, between myself and members of our Attorney General's staff, you and Mr. McLoughlin and Mr. Moreland of your Washington office, and members of Representative AuCoin's staff. As you know, the purpose of these discussions was to try to reach agreement on ways in which Oregon could participate in FEMA's proposed communications exercise, presently scheduled for March 3-5, 1987.

During our discussions, we explained to you the reluctance of a number of Oregon jurisdictions to participate in the proposed exercise. We described to you the extent of citizen opposition to the exercise, and the opposition of many of our legislators. We nevertheless expressed our recognition of the need for emergency preparedness and response systems, and we told you that we were more than willing to participate in an exercise that would test those systems.

The nuclear attack exercise proposed by FEMA could, in your view, be conducted by a handful of local officials spending no more than half an hour's time on each of three days. You expressed your desire for more vigorous and active participation by our local officials, and we assured you that if an acceptable alternative scenario for the exercise could be developed, we would exert extra efforts to make sure that the exercise was a full-scale, meaningful test of our emergency communications systems.

We volunteered to devote substantial creative talent to working with FEMA in developing a scenario that would be sufficiently detailed to meet your needs. In particular, we suggested scenarios involving combinations of terrorist attacks carried out with conventional weapons or nuclear devices; nuclear fallout resulting from accidents or sabotage at the Hanford and Trojan nuclear facilities; and natural or technological disasters. We remain willing to consider a wide range of other scenarios. You have stated that you are unwilling to consider any changes in the proposed scenario, other than in the number and location of nuclear bombs to be dropped. The scenario must, in your view, include a massive "nuclear laydown." You have expressed FEMA's belief that all money provided by FEMA to the states must be used specifically for nuclear attack preparedness.

Bill, as you know, we spent considerable time discussing FEMA's needs in an exercise such as this. The scenarios we have proposed meet each of those needs.

1. FEMA requires that the exercise be realistic. Oregon is willing to devise a scenario that will be at least as realistic as FEMA's unilaterally developed nuclear attack scenario. FEMA admits that its scenario, based on the novel Red Storm Rising and developed by military reservists, is not in fact realistic. The 48 nuclear bombs dropped on Oregon in the scenario are concededly included just to give

each participating jurisdiction something to do during the exercise. A scenario involving multiple terrorists, perhaps coupled with natural disasters, would be more realistic and would provide an equal communications test.

2. FEMA requires that the scenario involve detonation of a nuclear device, because electromagnetic impulses resulting from nuclear detonations at an appropriate altitude will knock out unprotected communication equipment. A nuclear terrorist scenario could easily be devised to satisfy this requirement.

3. FEMA requires that the scenario involve incidents in a variety of locations so that each of the local jurisdictions will have something to do. We are willing to participate in an exercise involving multiple terrorist attacks or natural or technological emergencies.

4. FEMA requires that the exercise include several days of advance notice, with nuclear detonations on the last day, so that communications and reporting networks can test population flows, runs on banks and grocery stores, etc. We can develop a scenario in which terrorists give advance notice of the consequences if their demands are not met, or in which a natural or technological disaster grows worse over several days. An incident such as that surrounding Three Mile Island would be a good example.

5. FEMA requires that the test be in response to an "attack," in conformity with the Civil Defense Act. FEMA has interpreted this to mean a Russian nuclear attack. However, "attack" is defined by the Act to include conventional war, terrorism, and other acts of sabotage.

6. FEMA requires the scenario to include an attack by a hostile foreign government. FEMA has picked the Soviet Union. The civil Defense Act requires only that the attack be by an enemy of the United States, and we are willing to devise a scenario involving terrorists who are agents of a hostile foreign government.

As our discussions over the past few days have indicated, we remain willing to devote the full creative energies of the state to developing an alternative scenario which meets each of the above requirements which FEMA has articulated. Our scenarios would guarantee a meaningful test of the emergency response systems which Oregon uses in natural and technological disasters, and such a test would be fully consistent with, would contribute to, and would not detract from Oregon's attack related preparedness.

We regret that FEMA has been unwilling to work with us in developing an alternative exercise along the above lines.

Sincerely,

Cory Streisinger
Legal Counsel
to the Governor

FACT SHEET

Participation of States of Oregon and Washington in Federal-Regional Civil Defense Exercise

The Governors of both Oregon and Washington have expressed their opposition to participating in a nuclear attack preparedness communications exercise designed to test Increased Readiness Reporting (IRR) procedures at the Federal-Regional, State and local levels. Similar exercises have taken place as recently as 1982 in Region X -- the Federal Emergency Management Agency (FEMA) Region where Oregon and Washington are located -- with no controversy. The proposed exercise would involve relatively few people: a county could play the exercise with as few as one participant or, at a maximum, six or seven for a relatively short period of time; State participation would probably require no more than two. Excluding the salaries of personnel already on board at all levels of government, the exercise will not cost more than $2,000 -- all of which constitutes travel expenses for FEMA staff to give briefings.

Oregon has asked FEMA if the State could modify the exercise scenario to depict a nuclear terrorist incident to make it more palatable to critics within their State who object to any preparedness activity having to do with nuclear war. FEMA's position has been, and remains, that such a change does not meet the Objectives agreed to by Oregon in its FY 1987 Comprehensive Cooperative Agreement (CCA) to "participate in a Local-to-State-to-Region National Security System Exercise per CPG 2-10 [IRR procedures]." (The CCA is the funding mechanism by which FEMA provides civil defense and other emergency preparedness funds and technical assistance to the States.) Although these reporting procedures, like many elements of the civil defense program, have been effectively used in peacetime disasters, the thrust of many of the actions to be reported relates exclusively to nuclear attack and would not be pertinent to a nuclear terrorist threat -- for example, numbers of fallout shelter managers completing training and reporting of expedient group shelter improvement and/or construction. In addition, the effects of electromagnetic pulse (EMP) on the communications systems of the State would not likely result from a terrorist incident.

A more important and broader issue than simply Washington and Oregon's non-participation in a national security exercise is the way civil defense funds are being administered by these two States. By law (the Federal Civil Defense Act of 1950, As Amended), civil defense funds are provided for attack preparedness. In 1981, the Act was amended to allow assets and capabilities developed by CD funding to be used for natural disaster preparedness so long as such use is "consistent with, contributes to, and does not detract from attack-related civil defense." The CCA's, which both States signed, further state that, "Refusal of a State to participate in nuclear attack preparedness programs and activities or lack of accomplishment of objectives supporting these activities will constitute reason for withholding or withdrawal of civil defense funding..."

Many other States are watching this case with great interest. Unfortunately, in recent years the unintended consequence of the all-hazard emergency management approach allowed under the 1981 Amendment has been a steady deterioration of already dangerously low levels of attack preparedness. And for some State and local officials, "all-hazard" has come to mean all hazards except nuclear attack -- a situation which clearly runs counter to the Law. This situation has not gone unnoted by the Armed Services Committees which, in their July 29, 1985 Conference Report, stated that they were "concerned about an apparent lack of focus and direction in the civil defense program...manifested in the funding emphasis on State and local civil disaster programs, which while meritorious, is a questionable use of national defense budget resources." FEMA expects that a soon-to-be-completed GAO report will also voice the same concerns.

FEMA will continue to explore every possibility to reach a compromise with the States of Washington and Oregon that will satisfy both their concerns and FEMA's responsibility to administer the civil defense program according to law. It has been, and will continue to be, FEMA policy to look beyond what a State says to what it actually does, and in following such policy we have been able to successfully resolve several issues such as this in the recent past. We must continue to stress, however, that acceptance of civil defense funds by States is conditioned by their commitment to share responsibility along with the Federal Government for attack preparedness.

Senator HATFIELD. On page 2 of your fact sheet, it says:

FEMA will continue to explore every possibility to reach a compromise with the states of Washington and Oregon that will satisfy both their concerns and FEMA's responsibility to administer the civil defense program according to law.

I also have the second document that is addressed to Mr. William Mayer, the Regional Director of your Agency in the state of Washington and this is from the Office of the Governor of Oregon, signed by his legal counsel, Cory Streisinger. Let me just quote one sentence from that:

We volunteered to devote substantial creative talent to working with FEMA in developing a scenario that would be sufficiently detailed to meet your needs.

Skipping on to the last paragraph:

We regret that FEMA has been unwilling to work with us in developing an alternative exercise along the above lines,

which I have already outlined to you.

General, I am puzzled as to the apparent contradiction of these statements from these two documents, and I really suppose that the first question would be, as the Director of FEMA, are you willing to work out a mutually acceptable scenario as an alternative to the current exercise relating to an all-out nuclear attack?

REQUIREMENT FOR EXERCISES

General BECTON. We are, sir, as long as it complies with the instructions which I have received in the national security decision directive and the law that prescribes that funds for civil defense be spent, first, for protection of the population against a nuclear attack, and second, and only second, for other types of disasters.

I would like to review, if I may, for a moment, the background of what you read.

Each state is in a position to negotiate with my regional office a comprehensive cooperative agreement, an agreement that lays out what they will or will not do and what we will do for them. Each of the 50 states and territories signed such an agreement last year, to include the states of Washington and Oregon, in which it was stated that they would have an exercise and the nature of this communication exercise.

Granted, it is initiated by nuclear weapons falling, but it is only a communications exercise of reporting throughout the entire state. This could not be implemented if we used a terrorist's attack, say, at a port or some other type of attack. This exercise will cost about $1,500 for each state.

I would like to ask the Deputy Associate Director for that particular program to follow up my comments.

Senator HATFIELD. I would be very happy to hear from him.

Mr. MCLOUGHLIN. Senator, there is the issue of the exercise itself. Clearly, that is an issue that we want to find a solution to as long as it is consistent with the law. We have briefed all of the congressional staffers; we have offered to put together a task force of one person from

Oregon, one from Washington, and one from our staff to work out an exercise. We are willing to make some adjustments.

Senator, I don't want to quote the law to you, but there are some key points that have been reinforced by the Congress as late as 1980. The thrust of the act is attack preparedness. One of the things that this controversy alerts us to is not just the exercise, Senator, but it is the administration of the entire $1.3 million that is provided to the state of Washington and a similar amount to the state of Oregon.

The question is not just the exercise itself, but rather the issue of a state's willingness to do attack preparedness. It is the administration of the entire allocation of funds.

Senator HATFIELD. Let me quote the law back to you.

Mr. MCLOUGHLIN. I did that respectfully, sir.

Senator HATFIELD. And I do this respectfully.

Mr. MCLOUGHLIN. Thank you.

NATURE OF EXERCISE

Senator HATFIELD. The law also states that there ought to be plans in the program generally to cope with natural disasters. That is the law, in addition to attacks, not just attacks.

Now, let me ask you a second question, then. What is there in the exercise in question precisely that could not be tested in a terrorist's attack scenario? Because we are dealing with systems; we are dealing with communications; we are dealing with an array of systems.

Now, tell me the scenario this make-believe survivable nuclear attack that cannot be tested, the systems that cannot be tested under some other make-believe scenario.

ATTACK PREPAREDNESS IN THE LAW

Mr. MCLOUGHLIN. Senator, I will answer your question directly. But, may I comment first on the natural disaster part of the law? The Natural Disaster Amendment, which was added in 1981, also included a very specific section that said once the capability was developed for attack preparedness, it could be used for peacetime purposes provided it contributed to, did not detract from, and was consistent with, attack preparedness.

Senator HATFIELD. That did not repeal the 1950 provision which I am quoting.

Mr. MCLOUGHLIN. 1950?

Senator HATFIELD. I am talking about the 1950 Civil Defense Act which included natural disasters, as well as attack scenarios.

Mr. MCLOUGHLIN. It is our interpretation that the act is for attack preparedness. Once that capability is——

Senator HATFIELD. Exclusive?

Mr. MCLOUGHLIN. The funds are intended for attack preparedness capability building.

Senator HATFIELD. Exclusive?

Mr. McLOUGHLIN. No, sir.

Senator HATFIELD. No.

Mr. McLOUGHLIN. Once that capability is developed, we would want them to be used for peacetime purposes in order to exercise and test that capability. Shall I respond directly to your other part of the question, or do you want to follow up?

Senator HATFIELD. Go ahead.

EXERCISE SCENARIO

Mr. McLOUGHLIN. The reason the terrorist event would not be an adequate exercise scenario is this, Senator. What we are trying to test in this is a set of procedures that is current guidance. This set of procedures is an attempt to gather information before a nuclear attack to sense what is happening in the nation as a whole.

It is called an increased readiness exercise or, as the Director said, a communications exercise. It is intended to collect information on what is happening to fuel consumption, what is happening to grocery consumption, to get a feel for where people are, whether or not they have left the cities.

A terrorist attack would not do that. A terrorist attack, essentially, is an isolated event, let's say, in the city of Portland. It would not account for a full, statewide participation to exercise the collection of information. It would not set the background for the type of capability we are trying to test.

Senator HATFIELD. Mr. Chairman, my time is up, but if I could just have the committee's indulgence for just one closing comment, I don't think you are representing the justification that you gave for your budget accurately by putting your emphasis, as you have, on this attack phase of your responsibility.

I quote, both from your own document here:

> Funds made available to states may be used for preparing for and providing emergency assistance and response to peacetime disasters to the extent such is consistent with, contributes to, and does not detract from attack-related preparedness.

Now, there once again, you are putting a good emphasis in that justification, and I take also a second one from your justification:

> This program exemplifies capabilities for all hazards, including nuclear attack——

all hazards, including nuclear attack, and goes ahead with other emergencies.

Mr. Chairman, I am going to take whatever steps are necessary to force this issue into a compromise, perhaps reduce the general funds of your appropriations, and I don't want to take the extreme measures that we have the authority to take, but we had to do that one time with the Secretary of Education and some other agencies to get their attention.

We want to solve this in Oregon. We want to do it with your assistance, and so far, your regional director has not been very responsive to either the Governor of Oregon or the Governor of Washington, and if we can't get the support out of your region, then we want it directly from you and your instructions to your region. And if we can't get that,

then we will have to take direct actions here on amendment procedures of this committee.

So I am giving you notice that we want to cooperate, and we will cooperate, but we haven't been able to get very much out of Mr. Mayer, and whether it is a personal problem or whatever, we want some action from the Director of the Agency in order to resolve this in a gentlemanly way and in a compromise.

REGION'S LETTER TO OREGON

Senator PROXMIRE. May I say to you, Senator Hatfield, that I am going to do everything I can as chairman of the subcommittee to cooperate with you fully. I think you are correct in that.

General Becton, I should call on my colleagues. I am going to ask their indulgence to ask one question following up what Senator Hatfield has said.

I have had an opportunity to look at the letter your regional director sent to Governor Goldschmidt, and I consider the language in that letter arrogant, patronizing, and inflammatory.

Let me read just a few sentences from the letter:

> Whereas there may be many Oregonians who find the concept of planning for a survivable nuclear war unacceptable, I would suggest to you that there are many more in the state of Oregon that expect the state of Oregon to fulfill its responsibilities for the protection of the health and safety of its citizens against all hazards including nuclear war.

I quote again from the letter:

> It should be noted that this is a regional exercise involving four states. Other than to invite comment—we cannot be expected to negotiate the details of each scenario with four different states.
>
> The failure of the state of Oregon and its subdivisions to participate in the required national security exercise will be construed as a serious breach of the 1987 Comprehensive Cooperative Agreement.

General Becton, why can't your people treat the elected Governor of the state of Oregon with a little more respect? Wouldn't that approach be more likely to elicit a reasonable compromise?

General BECTON. Sir, there have been many discussions with the Governor and with his people. Bill Mayer, the regional director, is following procedures that establish what steps are to be taken in using the comprehensive cooperative agreement that, as I said, was signed by the state of Oregon, as well as the other states, stating that they would participate.

Senator PROXMIRE. You appear to me to be such a reasonable person, and I would hope that you can show that fine element of understanding and reasonableness and compromise in your relations with the Governor. The letter just seems to be out of character with what I know about you and your fine reputation.

Senator PROXMIRE. Senator Lautenberg, go ahead.

PURCHASE OF PROPERTY

Senator LAUTENBERG. Mr. Becton, I have a specific area of questions that I would like to put to you. You have a program of great importance to New Jersey, and that is the buyout of homes in flood areas. FEMA has $7.5 million available for buyouts in the Passaic River basin. However, in the 18-month program, FEMA has purchased only nine homes. Are you or a member of your staff familiar enough with this to tell me why the program has been virtually so unsuccessful?

General BECTON. Thank you, sir. Our Federal Insurance Administrator will tackle that one.

Mr. DURYEE. Senator, we expect the report from the regional office in our office by April 1, and we anticipate full negotiation on the balance of those properties once that report is received.

There have been some problems in that some property owners have indicated they may not be willing to participate in the program. It is a voluntary one, and the number of properties may decline, but the money will be there for the negotiation and settlement of those properties.

Senator LAUTENBERG. It would be helpful if you would submit to us a report on those who have declined and the reasons they have declined. I have to ask you just one followup question, and that is, why is that report just coming to you now? This was a problem of a year and a half ago.

Mr. DURYEE. There is some problem, Senator, with property owners asking that we negotiate what they consider the appropriate price of the property now, whereas our regulations require that we consider the price of the property less the claimed payment at preflood value.

Senator LAUTENBERG. You mean the property value has gone up since they have been flooded?

Mr. DURYEE. They feel that it has; yes.

Senator LAUTENBERG. Can you tell me what needs, in capital form, to be done to make this a more effective program?

Mr. DURYEE. Senator, we have that under study at the moment, and we have asked our Inspector General to conduct a study, not only of the way we spend the money, but the way we manage the money to make sure that we can build a more effective program.

Senator LAUTENBERG. Thank you. Thank you, General. I think your Agency does a great job, and I want to cooperate with you, but we want this project to move along.

Mr. DURYEE. So do we, sir.

Senator LAUTENBERG. Thank you very much.

General BECTON. Thank you.

Senator PROXMIRE. Thank you, Senator Lautenberg.

Senator Mikulski?

REORGANIZATION OF OFFICE OF TRAINING AND FIRE PROGRAMS

Senator MIKULSKI. Thank you, General Becton and members of FEMA. Good morning. You have quite a complicated job protecting us against hazardous waste incidents to terrorism.

I have two areas of questions, depending on time, one related to the Fire Administration at Emmitsburg and the other, a broader policy question, related to local reaction and local preparedness.

General Becton, I understand that you want to reorganize the Office of Training and Fire Programs that is currently located at the Emmitsburg site and move it to the Washington area; is that correct?

General BECTON. That is correct, Senator.

Senator MIKULSKI. I am concerned about the proposed reorganization of the training and the transfers. Both actions, we think, would hurt the facility we have in Emmitsburg and also damage the excellent work you are doing.

Mr. Chairman, if I could just inform the committee, you are aware of the Amtrak tragedy in Chase, Md., in which there was minimal loss of life, thanks to our preparedness on the ground. My Baltimore County officials and Amtrak people tell me that the preparedness training that they received in Emmitsburg was crucial to the kind of response that they made and, therefore, minimized the loss of life.

That is the kind of thing we want to see, not only for Maryland, but for the whole country. We want you to stay as effective as you are. That is why I am concerned that this reorganization of FEMA and moving people to Washington will hurt it.

Could you tell me what your plans are and what its fiscal and policy impact would be?

General BECTON. Yes, I can, Senator. I am delighted that the people of Baltimore feel that way. We will participate with them in exercises.

I point out, Senator, there will be no change in the instruction at Emmitsburg of the Emergency Management Institute or the National Fire Academy. Those will remain unchanged. What we are changing, however, is the overhead structure at Emmitsburg, because we find that they are not doing what should be done. We are trying to reduce the overhead. We are trying to place training throughout the Agency under one head, and that is our goal.

We believe that we can enhance the training opportunity to our constituents by making this move.

RELOCATION COSTS

Senator MIKULSKI. How many employees would have to be relocated under your actions and what would be the cost of such relocation?

General BECTON. As I explained earlier, Senator, we have a task force looking into the exact impact of this. The announcement of my intention was made February 2. We propose to have this accomplished by the end of the fiscal year. We do not anticipate any cost that we cannot account for. We cannot tell you the numbers of people involved yet, because we are still evaluating it.

Senator MIKULSKI. It is my understanding that the number of people in the Fire Administration we are talking about relocating could cost us anywhere from $200,000 to $500,000, roughly a $20,000 relocation cost per person.

General BECTON. I have not heard those numbers. I am getting nods from my people to indicate that may be possible.

Senator MIKULSKI. If you haven't completed your analysis, then, would it be reasonable to expect you to delay this move until we have done a cost analysis?

General BECTON. Senator?

Senator MIKULSKI. When do you want to do this?

General BECTON. When?

Senator MIKULSKI. Yes.

General BECTON. We intend to accomplish it prior to the end of this fiscal year.

TIMING OF REORGANIZATION

Senator MIKULSKI. How can you do it before the end of this fiscal year when you don't know how much it will cost and you won't have that done until the end of this fiscal year?

General BECTON. No, no; let me try it again. My intentions were to have the entire disestablishment of the Training and Fire Programs Directorate accomplished by the end of the fiscal year, to have the U.S. Fire Administration relocated prior to the end of the fiscal year, and to establish an Office of Training in Washington prior to the end of the fiscal year.

I said earlier that this is one of those proposals I realize that we will be coming back to the Congress in order to explain step by step what we are doing.

Senator MIKULSKI. Congresswoman Byron advises me in a survey of employees, because it is in the 6th Congressional District, that with the number of employees leaving the cost would be anywhere from $200,000 to $500,000.

We will be eager to have your report. The other question that I have is a policy one which relates to the breakup of policymakers and the hands-on fire and training experts.

EFFECT OF REORGANIZATION

General BECTON. What we are doing is leaving the two training institutes in place. We are establishing an Office of Training in Washington which will deal with training across the board to all of our constituents, not just the fire and emergency managers. We are putting in a very senior official to head up that office. We are returning people from the headquarters back to the platform to enhance the training that we are providing.

Senator MIKULSKI. I am concerned that the policy people will be in Washington, the hands-on people are going to be in Emmitsburg, and I am concerned about this separation. It is the same kind of integrated and standardized programs which helped avoid so many losses. You are a one-stop shop.

General BECTON. That is right, Senator.

Senator MIKULSKI. For the people out there who are concerned, and I am a big supporter of the volunteer fire departments around this

country. What a special job I think they do for us. They really are heroic in what they do, and they fund themselves on bake sales and bubblegum raffles. You really are who they come to to get their training, and I am afraid we are divesting fire training from FEMA management.

General BECTON. Senator Mikulski, there is no divestiture; our policy people have always been in Washington. Our policy people for emergency management have always been here.

COOPERATION BETWEEN FIRE ADMINISTRATION AND FIRE ACADEMY

Senator MIKULSKI. Mr. Chairman, I just want to make this final question, and I know my time is almost up. But I know how interested you are in the fire training issue. Isn't it true that the U.S. Fire Administration staff and the staff of the National Fire Academy actually work together quite a bit now?

General BECTON. The U.S. Fire Administrator can respond to that, but I will point out that the National Fire Academy is not part of the Fire Administration and the Fire Administrator is not part of the Fire Academy. They are two separate activities.

Senator MIKULSKI. Don't they work together now? Isn't this whole idea of a one-stop shop away from the pricey, very pricey real estate in Washington cost effective?

Mr. BRAGDON. Senator, we do maintain a program linkage at this time, and the plans that are unfolding between the Office of Training and the Program Office will maintain that linkage, given that we will not physically be located at the same location.

Senator MIKULSKI. How are you going to keep this kind of cooperation going, driving in from Emmitsburg?

Mr. BRAGDON. Driving in from Emmitsburg? I suggest that we will probably be driving from both directions, as would be required when we need to interface with each other.

General BECTON. Senator, as I also may point out, the Emergency Management Institute, which is also located at Emmitsburg, has its policy people here in Washington.

Senator MIKULSKI. I want them all to move to Emmitsburg. [Laughter.]

General BECTON. Senator Mikulski, we don't have enough buildings out there. We are trying to get this headquarters together.

Senator MIKULSKI. Isn't that the old St. Joseph's College?

General BECTON. Yes.

Senator MIKULSKI. I am sure there is an extra convent around. [Laughter.]

REORGANIZATION

General Becton, I want the committee to proceed. Know that I really have a very serious question about your proposed changes. I am not convinced that they are in the best interest of FEMA, the national emergency training or fire rescue squads. I would hope that you would withdraw your proposed changes administratively until such time as you

have completed your cost review, and tell us how this would work in terms of actual policy implementation.

I would hope you would do that.

General BECTON. I hear what you are saying, Senator. I have a problem with that. I would continue my discussion if you desire. I think that I understand the needs of training. I have spent most of my life in training. I believe that when we permit overhead, we permit duplication; when we permit a separation of policy from operators, we are not doing the best for the constituency that we serve. We are basically serving the state and local governments.

Senator MIKULSKI. General, I absolutely agree with that, sir, and respect you and your backgrounds. But you have given us no cost analysis. You can't tell me how many employees it would affect. We are talking about moving people to Washington real estate, which I can assure the committee is far more money per square foot than downtown Emmitsburg. We are just interested in what is the best policy and what is the best fiscal decision, and you haven't completed that yet. They are also telling me my 10 minutes are up.

Senator PROXMIRE. Thank you very much, Senator.

Senator Domenici.

NUCLEAR POWERPLANTS AND LOCAL PLANNING

Senator DOMENICI. Thank you very much, Mr. Chairman. I want to take just a few minutes to talk about the Nuclear Regulatory Commission's proposals with reference to nuclear powerplants and local emergency planning. Are you aware of the issue, General?

General BECTON. Yes, sir; I am.

Senator DOMENICI. Well, I was on the conference committee in 1981 when the provision for local planning for emergencies was put into the law. I have in front of me an excerpt from the Congressional Record dated July 16, 1979, which I am going to ask the chairman to insert in the record. One of the chief proponents of the local emergency planning aspect of licensing for nuclear powerplants, Senator Hart, engaged in a dialog, and his conclusion was that:

> Our best information from the NRC is that it can do the job in the specified time and that our amendment will serve as an action-forcing mechanism but not force the shutdown of nuclear powerplants.

I also have some dialog from the House-Senate conference, wherein Representative Vento, Senator Hart, and Senator Simpson, who was the prime sponsor of the local planning for emergency preparedness provision, discussed this issue.

[The information follows:]

[From Congressional Record—Senate, July 16, 1979]

SENATE DEBATE ON FISCAL YEAR 1980 NRC AUTHORIZATION—EMERGENCY PLANNING INTENDED AS AN INCENTIVE

Mr. DOMENICI. Mr. President, will the Senator yield for a unanimous-consent request?

Mr. HART. Yes.

Mr. DOMENICI. Mr. President, I ask unanimous consent that Charles Trabandt, Will Smith, and Ben Cooper of the Energy and Natural Resources Committee staff; Rick Richards of Senator JOHNSTON's staff, Paul Gilliman, Steve Bell, and George Ramonas of my staff be granted floor privileges during the discussion and votes on this measure.

The ACTING PRESIDENT pro tempore. Without objection, it is so ordered.

Mr. DOMENICI. I thank the Senator from Colorado.

Mr. HART. Mr. President, a parliamentary inquiry.

The ACTING PRESIDENT pro tempore. The Senator will state it.

Mr. HART. What is the pending business before the Senate?

The ACTING PRESIDENT pro tempore. S. 562.

Mr. HART. I thank the Chair.

Mr. President, as chairman of the Subcommittee on Nuclear Regulation of the Committee on Environment and Public Works, I am pleased to present for Senate consideration S. 562, as amended, authorizing appropriations for the Nuclear Regulatory Commission for fiscal year 1980. The NRC authorization bill represents a major element in our oversight of the Commission.

The Nuclear Regulatory Commission sent to Congress a proposed budget of $373.3 million, a 13-percent increase over the estimated obligations for fiscal year 1979 of $328.6 million. The committee accepted the Nuclear Regulatory Commission's total request, although it reallocated some funds within the total to meet certain priority needs.

Mr. President, the NRC authorization bill comes to the Senate in the wake of Three Mile Island, the most serious nuclear accident in the history of the civil nuclear power program. Prior to Three Mile Island, the committee had considered reducing the Nuclear Regulatory Commission's proposed budget increase. In the aftermath of Three Mile Island, however, we recognized the urgency of providing additional resources to meet the substantial responsibilities arising out of the accident. The Three Mile Island accident has triggered an exhaustive reappraisal of our reliance on nuclear power. The results of the committee's special Senate-authorized investigation, and of other investigations, should reveal whether in the past we have too blithely underestimated the potential risks of nuclear power and too blindly ignored the potential benefits of energy alternatives. At the least, these investigations should help point the way to better regulation and control of civilian nuclear power.

The proposed fiscal 1980 authorization for NRC reflects the committee's response to remedying the weaknesses in our nuclear regulatory structure. Exposed by the Three Mile Island accident. For example, the accident caused us to question the adequacy of the Nuclear Regulatory Commission's program for inspecting operating reactors. In fiscal year 1977, the Commission initiated a resident inspection program that would station 83 inspectors at selected sites to monitor the daily operations of the reactors. Prior to Three Mile Island, the Commission had planned to hire only 27 additional resident inspectors during fiscal year 1980. Today's authorization bill, however, mandates that the Commission drastically expand its program by hiring 146 additional resident inspectors.

The committee expects the resident inspector program will improve the effectiveness of NRC by: First, providing more opportunities to observe licensed activities; and, second, giving the inspector greater knowledge of the plant, enhancing his ability to make prompt and accurate technical judgment.

In addition, the bill directs GAO to conduct a study comparing the advantages and disadvantages of the new resident inspector program with the existing regional inspection program. Thus, this portion of the authorization bill begins to grapple with the traditional assumption which underlies the NRC's regulatory philosophy: That the commercial utility companies, and not the Nuclear Regulatory Commission, should have the principal responsibility for insuring that licensed activities comply with NRC regulations.

The committee's preliminary investigation of the accident also revealed that reactor control room personnel, when confronted by serious problems, failed to respond appropriately during the initial sequence of events leading to the crisis. Deficiencies in operator performance in-

cluded: A lack of vigilance in assuring that the plant was operating in compliance with its license requirements, a failure to understand properly the reactor condition, and a failure to respond promptly and adequately to the emergency situation.

Therefore, the committee, in this bill, directs the Nuclear Regulatory Commission to prepare a plan for improved training, retraining, and licensing of reactor operators. The plan will specifically address the problems of emergency response training. The Commission will also study the feasibility of licensing plant managers and other personnel not now subject to NRC licensing, who have authority to make decisions affecting the operation of a plant.

The Three Mile Island accident also underscored the immediate need for a national contingency plan which insures coordinated Federal response to future emergencies at nuclear powerplants. The authorization bill requires the President to promulgate such a plan, setting up a Federal interagency task force with the NRC as lead agency to facilitate coordination.

The NRC's response to the Three Mile Island crisis disclosed a disconcerting lack of preparation for such an emergency. There was a delay in the arrival of NRC's principal technical experts on site. There was a delay in the availability and coordination of support services. The NRC was unable to obtain and relay accurate and timely information. Certain actions of the utility were unanticipated and unapproved by the NRC.

In response to this set of circumstances, the authorization bill requires the NRC to promulgate a plan for responding to nuclear emergency. The plan will insure prompt notification of an emergency by a plant operator, prompt dispatch of NRC emergency response team to the plant site, swift and accurate communication within the NRC and between the NRC and responsible Federal, State and utility officials, and accurate monitoring of radiation levels on site.

Perhaps the most significant remedial legislative measure spawned by Three Mile Island is the amendment to section 202 in the printed bill which my distinguished colleague, the Senator from Wyoming (Mr. SIMPSON) and I offer in the form of a perfecting amendment. The amendment would require each State without an already concurred-in plan to submit an emergency response plan. New operating licenses could not be issued by NRC to plants in States without an approved plan during this period. States whose plans fail to receive NRC approval for specific plants within 9 months of enactment will face a shutdown of those plants within their borders.

To facilitate the Commission's review of these State emergency response plans, S. 562 authorizes $4,238,000 for the Office of State Programs, an increase of nearly $1.55 million and eight positions over the Commission's original request. New, upgraded emergency plan regulations would be issued by the NRC by the end of this 9-month review period. Our best information from the NRC is that it can do the job in the specified time and that our amendment will serve as an action-forcing mechanism but not force the shutdown of any nuclear powerplants.

Mr. President, as we look into our crystal balls and attempt to divine the future for nuclear energy in this country, we must seek solutions to problems based not on emotionally-charged rhetoric but on dispassionate, reasoned analysis. This the committee, through its investigation, will strive to do. Last month the Senate authorized $401,700 for our committee's special 1-year investigation into the Three Mile Island accident, an investigation that should help the Senate attain this objective with respect to future regulation and control of civilian atomic energy program.

Mr. President, I personally believe that it is unrealistic and simplistic to suggest that we can immediately terminate nuclear power. There are currently 70 reactors licensed to operate in the United States. An additional 125 reactors are under construction or are planned. Electricity generated by nuclear powerplants satisfies fully 14 percent of this country's electricity requirements. In some areas of the country, particularly the East and Midwest, nuclear power supplies between 30 and 40 percent of the total electrical output. Thus, although the future of nuclear energy is at the present time at least hazy, it is clear that nuclear energy, safely controlled, should have a future, and that these reactors, safely operated, can significantly contribute to electrical power generation in the years ahead.

This authorization bill can only respond to the most immediate problems. Of course, much work remains to be done. There are no easy answers to the complex problems surrounding this source of energy. But if we are to protect the health and safety of a public growing both increasingly dependent on and anxious about nuclear power, we must search all the harder for the answers.

This authorization bill represents an essential part of our Nation's effort to insure that nuclear power is a safe

energy source for as long as we need it. I recommend that the Senate approve this bill as reported and perfected by the committee.

Mr. President, last night I heard the President of the United States address the Nation on the critical problem of our energy supplies and the role that they play in restoring this Nation's selfconfidence. The President chose not to address the complex issue of nuclear power. Perhaps he will do so today or tomorrow, or in the coming days; but it seems to this Senator, having spent almost 3 years on the very difficult issues related to the future of nuclear power in America, that we cannot address the energy future of America without thoughtful consideration of the role nuclear power will play. We cannot address the future role that nuclear power will play without, addressing at the same time, the very difficult problems that the Three Mile Island accident represents, and the very complex issues of safety, proper inspection and regulation that surround the nuclear power industry itself.

That accident, which occurred just 3 months ago, was a rude shock, particularly to those who have felt for the last two or three decades that nuclear power was one of the answers if not the answer to the future role of this country and its energy needs. That situation has changed dramatically, Mr. President, in the last few weeks.

We have not solved the problems created by that accident; we have only begun to consider them. This bill is an initial attempt to address those problems and the new problems which will hereafter be faced by the Government agencies and committees that have responsibility for regulating and controlling nuclear power.

Mr. President, I do not think we will solve this country's energy needs in the abstract, or without addressing the difficulties of nuclear power. Today, with this bill, the Senate begins that process, and I hope begins it wisely.

and voting staff is not taking even minimal steps to prepare for the startup of the new nuclear power plant designed to provide energy for that area, Ithink the peopel know how to get those results.

We believe, all the people talk about best governments closer to the people, I think the people know where their state capitals are and how to get ahold of their state government and let them know they are not happy.

Representative Udall. Mr. Weaver?

Representative Weaver. Thank you, Mr. Chairman.

First, I just want to commend Senator Hart and his colleague, Senator Simpson, for the excellent work, and I think a very fine compromise. I think it does draw a fine balance between the House and Senate versions, and protects the public health and safety in the most reasonable way. I certainly support the compromise.

Representative Vento. One of the points there, since this overall state responsibility, is there any possibility that we can include report language if it were adopted that would permit the NRC or FEMA to work directly with the utilities? We can make clear if an individual utility is being frustrated by that, that the NRC, in the absence of state action, could act to approve a plan, and thereby avoid this particular problem that has been discussed.

I don't know what the disposition of this is going to

be. It seems to me if we do anything on that basis, it would seem to be the reasonably way to go so we don't have that impediment.

Senator Hart. It is not disagreeable. I think it would be put in an area where it hasn't been before; namely, emergency preparedness, civil defense.

Representative Vento. It is an effort to try and deal --

Senator Hart. I understand.

Representative Vento. I am under Mr. Weaver's time.

Representative Udall. Let me just add, bear in mind, what we are dealing with is an annual authorization bill. Whatever we do here expires at the end of this fiscal year, 6, 7 months from now. This will undoubtedly set a pattern that will be carried forward. My hope has been sometime this year, sometime this spring on our side of the Cabinet, we can start working on a general policy bill.

Bear in mind this decision, whether we put it in the rule or statute, precisely what we will do will have an effect for 6, 7 months. In fact, we will begin to lap ourselves.

Representative Weaver. Mr. Chairman.

Representative Udall. Mr. Weaver wasn't finished. I stole his time.

Representative Weaver. Mr. Chairman, I want to cite for the record a dramatic illustration of urgency of

Senator DOMENICI. Representative Vento asked the question:

> One of the points there, since this is overall state responsibility, is there any possibility we could include language, if it were adopted, that would permit NRC or FEMA to work directly with the utilities? We can make it clear, if the individual utility is being frustrated by that, that the NRC in the absence of state action could act to approve a plan and thereby avoid this particular problem that has been discussed——

the problem being, essentially, a state veto.

I will skip over a little bit to Senator Hart's answer which was:

> It is not disagreeable. I think I would put it in an area where it hasn't been before; namely, emergency preparedness and civil defense——

and he proceeds to talk about the bill being an annual authorization measure, which has long since expired.

APPROVAL OF EMERGENCY PLANS

What concerns me is that in spite of that history, FEMA has been charged, not the NRC, with trying to get states to approve emergency plans regarding nuclear powerplants within their states. It started off that there was one state and one plan; it is now three. Three nuclear powerplants may be closed down or not opened because the states refuse to come up with an emergency plan that they approve in conjunction with your efforts to prepare the same.

I think that is an accurate history. What concerns me is that the Nuclear Regulatory Commission has to fill the void; somebody has to. I don't think there was ever any intention on the part of Congress that this provision for state planning for emergency evacuation and the like be used as a state veto, either for a shutdown of, or the nonissuance of, a license to a nuclear powerplant.

If you disagree on any of these, I will finish shortly, and you can respond. But I am rather certain that all of the people that participated never saw it as a veto right.

Yet, we had great confidence that you might be able to negotiate an emergency evacuation plan, and it is not working. The Nuclear Regulatory Commission must, as I see it, proceed with some kind of set of regulations, doing precisely what Representative Vento recommended, where the Nuclear Regulatory Commission works with the company and comes up with a plan on the assumption that in the case of an emergency, the state will, indeed, cooperate.

I am a little bit disturbed, because I believe that your shop is internally trying to draft some suggestions, perhaps to help Nuclear Regulatory Commission with their job; perhaps to keep the job vested at FEMA; and perhaps to frustrate the entire effort by suggesting that it ought not to be done this way.

I have a letter of February 27 with attached documents that are labeled "Draft" that were sent to Congressman Markey by FEMA. I ask that they be entered into the hearing record at this point.

[The information follows:]

LETTER FROM DAVE MCLOUGHLIN, DEPUTY ASSOCIATE DIRECTOR, STATE AND LOCAL PROGRAMS AND SUPPORT, FEDERAL EMERGENCY MANAGEMENT AGENCY

FEB 27 1987

The Honorable Edward J. Markey
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Markey:

Director Becton has asked me to respond to your February 19, 1987, letter in which you requested information on FEMA's "role in the inception and development" of a Nuclear Regulatory Commission proposed rule which would permit the licensing of nuclear power plants where State and local governments do not cooperate in the emergency planning process.

The only discussions between FEMA officials and outside sources on this proposed rulemaking were with the NRC staff. These discussions were limited to the following:

1) Late in December 1986, Mr. Martin G. Malsch, Deputy General Counsel, NRC, telephoned Mr. Spence W. Perry, General Counsel, FEMA and reported that NRC was considering a change in its regulations to deal with situations where state and local governments fail to participate in offsite emergency planning. After receipt of a draft of the proposed rule change, Mr. Perry provided Mr. Malsch his informal, comments by telephone. He said that he would not comment on the appropriateness of the NRC proposing the rule in the context of its own licensing authority, and that if the NRC believes that offsite planning and preparedness is essential to its licensing process, then the involvement of state and local officials is the most preferred approach. Mr. Perry also expressed concern for the continued participation of state and local governments in the existing process of planning, and the testing of plans in exercises around operating nuclear power plants, if such a rule were adopted. Mr. Perry emphasized that these comments were his initial impressions as the Agency's lawyer, not the official position of FEMA.

2) Mr. Richard W. Krimm, Assistant Associate Director, Natural and Technological Hazards, State and Local Programs and Support, FEMA, was provided an undated copy of the draft staff paper on the proposed rulemaking by Mr. Edward L. Jordan, Chief, Emergency Preparedness and Engineering Response Division, Office of Inspection and Enforcement, NRC, on January 20, 1987. Mr. Krimm, not knowing that the NRC staff proposal was signed and sent to the Commission provided essentially the same comments, made previously by Mr. Perry to Mr. Jordan by telephone on February 6, 1987. The same day I called Mr. Victor Stello, the Executive Director for Operations at NRC with essentially the same comments. I, too, was unaware that the NRC staff paper had been sent to the Commission.

Since the February 6, 1987, NRC staff paper to the commission (SECY-87-35) stated that final views of FEMA on the proposed rulemaking would be solicited during the comment period, the FEMA staff has begun to formulate a recommended position. The principal, initial concerns expressed by the staff are in the enclosed draft. The views expressed in this draft should not be considered the FEMA official position. It should not be released to other sources. This draft, along with other comments that the staff might prepare, will be considered by FEMA senior management. We plan to provide NRC with a formal FEMA position during the comment period which the Commission has approved

If you should need further assistance, please have a member of your staff contact the Office of Congressional Relations at 646-4500.

Sincerely,

Dave McLoughlin

Dave McLoughlin
Deputy Associate Director
State and Local Programs
and Support

Enclosures

cc: The Honorable Philip R. Sharp, Chairman
Subcommittee on Energy and Power

DRAFT

NOTE: This draft was prepared by FEMA staff for consideration of FEMA Senior Management in the event NRC decided to issue the proposed rule for comment and requested FEMA to provide its formal views. The draft, therefore, should not be released to other sources.

Principal Concerns about the NRC Proposed Rulemaking to deal with the lack of State and Local Government Cooperation in Offsite Emergency Planning

We have the following principal concerns about the NRC proposal.

1. The impact of absence of State and local government participation in the planning and preparedness process.

FEMA has consistently and repeatedly taken the position that such participation is essential to a finding of adequacy of offsite preparedness around nuclear power plants. While the NRC's proposal envisions compensating measures by the licensee and good faith efforts by the licensee to gain the cooperation of state and local governments, the basic premise for the rule making is non-cooperation. It is, therefore, questionable whether compensatory measures and other overtures by the licensee will change a situation where the state and for local governments are steadfast in their refusal to cooperate. This cooperation is critical from FEMA's viewpoint. We conclude that NRC has shared this viewpoint, since NRC's current regulations provide that no operating license will be issued unless a finding is made that there is reasonable assurance that adequate protective measures can and will be taken in the event of an radiological emergency. In this connection, we note that NRC has not used it's statutory authority to license a nuclear power plant in the absence of a FEMA approved state and local government plans, if the commission determines that there is a state, local or utility plan which provides reasonable assurance that public health and safety is not endangered by the operation of the facility concerned.

2. The regulatory philisophy reflected in the proposed rule making is a retreat from the position adopted by the Commission in 1980, (in the post TMI environment), which accorded emergency preparedness a status of importance essentially equal to siting, design, construction and engineered safety systems in their licensing decisions.

The effect of this shift in regulatory philosophy is to assign a subordinated role to emergency planning and preparedness. Notwithstanding the intent of the NRC to have it apply only to the limited number of cases where state and local governments are non-cooperative, other State and local governments could be expected to follow the non-cooperative route, even where there are operating plants.

NOTE: This draft was prepared by FEMA staff for consideration of FEMA Senior Management in the event NRC decided to issue the proposed rule for comment and requested FEMA to provide its formal views. The draft, therefore, should not be released to other sources.

Wherever the changed regulatory philosophy toward preparedness would be applied, the integrated onsite-offsite approach, which has been considered essential to adequate preparedness, would be put in jeopardy. Next in importance to State and local government cooperation in offsite planning and preparedness, is the interaction that must take place between the licensee and offsite authorities and the general public. This interaction is best illustrated in the required joint exercises, which would be waived under the NRC proposal.

Further, this shift changes the emphasis from preplanning to more ad hoc arrangements within the plume exposure pathway. Under the current regulatory philosophy, it is expected that all significant emergency functions should be preplanned, and ad hoc arrangements are only relied upon for worst case or atypical accident consequences. Under the proposed regulatory amendment, this emphasis would be lost since preplanning is devalued and ad hoc arrangements, arising from the assumed participation of non-cooperating governmental jurisdictions, would have to be relied upon for the protection of public health and safety.

3. The Issue of States Rights.

States have increasingly asserted their right to be (or not to be) involved in the offsite planning and preparedness at nuclear power plants and have been led to believe that they have this right through NRC and FEMA regulations and the manner in which these regulations have been applied.

FEMA believes that the non-cooperative stance of some State and local governments stems from a genuine concern for the health and safety of the people living in the vicinity of nuclear power plants. We believe these rights and concerns should be respected. We also believe that unequivocal assurance, that the public health and safety can and will be protected without State and local participation in offsite emergency preparedness is necessary for the nuclear power plants in question to be licensed. Notwithstanding the compensatory measure discussed in the NRC staff paper we believe that the proposed rule making does not give that assurance.

Senator DOMENICI. As I review them, they appear to be criticisms of the Nuclear Regulatory Commission's effort to set in motion a series of regulatory proposals to allow this alternative to take effect. That is, the Nuclear Regulatory Commission and the companies put an emergency plan together that the Nuclear Regulatory Commission approves and the plant can proceed or not be shut down.

I wonder if you might tell me whether FEMA thinks that there is some way to resolve this dilemma without the Nuclear Regulatory Commission having to establish a set of regulations, so that we can get off the dime where we have states that absolutely refuse to participate with you in the development of an emergency evacuation plan.

ROLE IN EVACUATION PLANNING

General BECTON. Sir, I would like to turn to my Deputy Associate Director in that program, but I would point out that my understanding is that it is the NRC's chartered responsibility to make the determination about whether a utility is licensed or not licensed, and it is FEMA's responsibility to work as a consultant to the Nuclear Regulatory Commission to make the determination as to whether the plan that is prepared is basically suitable or we could offer a reasonable assurance that the protection and safety of the population can be guaranteed.

Senator DOMENICI. I believe that is correct. But states are refusing to participate in these exercises, and we are now at the point where the concerns discussed during the history of this legislation have come into being. Indeed, when we said to the states, "You participate and help prepare the plan," and put FEMA to work with them to try to get an approved plan, that that would then be conclusive for the NRC that there was a plan.

I am only suggesting that it isn't working because states are refusing to participate. I am just trying to find out if there is some attitude on the part of FEMA to try to frustrate the Nuclear Regulatory Commission's effort to come up with a workable plan because you have been in charge of it to this point; whether you think you ought to be cooperating in an effort to get an alternative approach; or whether you ought to continue to negotiate and have almost the exclusive role, even though the effort is failing.

General BECTON. What you read, sir, was a response to a requirement from a House committee. Mr. Markey required the information. What you have is an attachment of a draft proposal that is still being staffed. I have not signed off on a policy to respond to the NRC.

If I may, I would like for David to make further comment.

FEMA AS A CONSULTANT TO NRC

Mr. MCLOUGHLIN. Senator, certainly, it is not our intent in any way to frustrate the NRC in the performance of their mission. As the Director has pointed out, we act only as a consultant. Our comments back to them will, first, address the fact that it is up to the NRC, not FEMA, to decide the role that off-site preparedness ought to play.

If they continue to decide that off-site preparedness plays an important part in the licensing process, then what our regulations say, the same as theirs, there are a certain set of things that have to happen. We have to be able to evaluate local planning and through an exercise to determine whether or not there is reasonable assurance for public health and safety being protected.

We have had direction from the Congress. Both of our Appropriations Committees have given us language that, in effect, says: We should presume that state and local governments will, indeed, respond in an actual emergency.

We believe that is good language. We believe the state and local governments would, indeed, respond. The problem that faces us in making a determination for the NRC, and that is our job, and they asked us to, is on what basis do we make that judgment? Simply to say that we believe state X or city Y will respond gives us absolutely no basis for making a judgment on reasonable assurance.

Now, we have worked the two plants that are in question, the two principal ones, and in both instances, have done everything that we can to try to move those forward. In the case of the Shoreham plant, we asked the NRC the type of exercise they want to run at that point and gave them a series of options. They told us what they wanted, because they knew up front that we were not going to be able to make a finding. We simply provided them information on the results of that exercise.

Essentially the same thing has happened in Seabrook. We have exercised the New Hampshire side. The Massachusetts state plan has not been prepared yet. Senator, if we are to operate on the basis of providing the NRC good information, the whole morality of our agency is that exercises are an important part of emergency preparedness and being able to test it, not just in the REP program, but in the earthquake program, in civil defense, in hurricane, all of the programs that we have. We have to be in a position to have some type of planning effort and exercise to test the planning.

Senator DOMENICI. The chairman has reminded me that my time is up. I think you have answered my question, General. I think you have said that Congressman Markey's subcommittee asked for, and received, a draft paper which is not necessarily FEMA's conclusion and that you are still in the process of evaluating your role with reference to NRC's new regulations on how they might proceed when a state absolutely refuses to participate in developing an emergency plan. Am I correct?

General BECTON. That is correct.

Senator DOMENICI. I thank you.

Senator PROXMIRE. Thank you, Senator.

RELATIONSHIP OF SDI TO CIVIL DEFENSE

General Becton, I want to go back to your new civil defense plan in which you spend $1.5 million in the next 4 years to build fallout shelters for public officials while giving the public self-help guides. Your

planning document states that this new civil defense plan would support the star wars, Strategic Defense Initiative [SDI].

General Becton, does this new civil defense plan protect an integral part, say, of the President's Star Wars program?

General BECTON. Sir, with all due respect, I don't think the words "Star Wars" are any place in our paper.

Senator PROXMIRE. I think you probably call it strategic defense initiative. That is certainly in your paper. I call it Star Wars, as do many others. I suppose it depends on whether you favor it or don't. At any rate, is it an integral part of your plan?

Mr. MCLOUGHLIN. The answer, Senator, is no, it is not an integral part. The reference to that in the document that you have was an attempt to define the fact that in the refocused civil defense program, with its emphasis on crisis management and population protection, that moving forward with these elements would not in any way interfere with changes that might have to be made in the program later if things like nuclear winter or Strategic Defense Initiatives were issues that had to be dealt with in civil defense.

Senator PROXMIRE. So whether the country chooses to go ahead in the future with SDI or not, you would feel that your civil defense plan would proceed as you plan it at the present time?

Mr. MCLOUGHLIN. It was designed that way; yes, sir.

VOLUNTEER/SELF-HELP PROGRAM

Senator PROXMIRE. While the government leaders are safely tucked away in fallout shelters, you propose to have volunteers and self-help guides for the rest of the public.

In your review paper you say, and I quote:

> This is not the first time volunteerism has been looked to as an augmentation to emergency management. Such emphasis was in existence throughout the fifties with an enrollment at one time of over 4 million people who would serve as radiation monitors, auxilliary police, block wardens, or search and rescue personnel.

Can you explain to me how this volunteer program you are posing now differs from the old 1950 civil defense program, which many people consider to be ridiculously unrealistic and was dropped because of that?

Mr. MCLOUGHLIN. Senator, I am not sure what the ridiculous part has reference to, the volunteerism part or in the fifties. What was it about the fifties program? Was it the evacuation element?

Senator PROXMIRE. At that time there were more rudimentary and less effective and less devastating nuclear arsenals on both sides. Yet it was believed we couldn't survive a nuclear attack anyway, the same position Senator Hatfield took earlier.

SURVIVABILITY OF NUCLEAR ATTACK

Mr. MCLOUGHLIN. Senator, we are just finishing a nuclear attack study to be used as our planning base up through the mid-1990's. What it indicates is that at least half of the people are outside or in the low-blast areas where something can be done.

At least half of our people will survive no matter what happens in a nuclear attack, even if there were no civil defense dollars today.

Senator PROXMIRE. I challenge that assumption. As I said earlier, if 1 percent can wipe out 35 to 55 million Americans right away, you think only the people in the cities would perish. Of course, if you have a nuclear winter, with the temperatures dropping 45 degrees below what they are now, animals would starve, plants couldn't grow, and starvation would be widespread. The Catholic bishops are right on target, it seems to me, when they say this is the first generation since Genesis that has the capability of destroying mankind on Earth.

So there is, it seems to me, a reasonable expectation that there can be nothing left, and a virtual certainty that we would be destroyed as an organized society. Although there would be a few politicians around, there would be no constituents.

Mr. MCLOUGHLIN. Senator, if things were as catastrophic as you just described, clearly, no civil defense program would have value. It cannot have value if the situation is as you describe it. Our best planning estimates, right now—and we have just concluded a new study which is being cleared with the Department of Defense, which indicates that in any attack that might be expected, at least half the people will survive. Our program is intended to relieve the human misery and suffering that will occur to this half of the people.

OUTYEAR COSTS OF CIVIL DEFENSE

Senator PROXMIRE. I would be very interested in seeing that, because in view of the fantastic destructive power of both arsenals with 10,000 strategic warheads, 100 would devastate our country; 1,000, which would be 10 percent, would leave nothing but a radioactive steaming mess throughout our country.

Let me ask you this. According to the review paper, this new civil defense plan will cost $1.5 billion over 4 years. The old civil defense plan, which Congress rejected, was to cost $4 billion over 7 years. What are you estimating now to be the cost of this new program over 7 years if you had to project it for an additional 3?

Mr. MCLOUGHLIN. Congress has, in the past, not looked very favorably on the out-year estimates. Every time we use a figure like $1.5 or $4.2, that number ultimately comes back to haunt us if I am candid with you.

What we are saying this time is that we have laid out a program, a base program from which we can surge. We will make progress toward that base as rapidly as the resources are provided to us by the Congress, without trying to define a specific dollar level. This has not been a successful way to deal with civil defense in the past.

EMERGENCY OPERATING CENTERS

Senator PROXMIRE. Have you, General Becton, considered how politically unpopular this plan will be across the country? The reason this was rejected last time by Congress is that you are talking about poli-

ticians building bomb shelters to save their hide, while the public was left to fend for itself.

Some of them may survive, they may be able to live, but they would be contaminated with radiation.

General BECTON. Sir, we have discussed the term "bomb shelters" several times today, but it is no place in our paper. We are talking about the shelter to protect against fallout. Even a Chernobyl-type thing—God help it doesn't happen here—would be an example where the EOC would be able to protect the public.

Senator PROXMIRE. That is a distinction. What I am talking about, then—and I beg your pardon for saying "bomb shelters," I will call them not blast shelters, but fallout shelters—the same point: It would save the hides of the people protected, which are the politicians and other people are left to perish.

General BECTON. Sir, we believe that the officials we are talking about are those who would broadcast over the emergency broadcast station; those who would direct fire equipment; those who would tell the people when they can come out of wherever they are; and those who would provide the entire array of facilities and activities and support to the population.

Senator PROXMIRE. Would state and local governments be expected to put up any money to build these thousands of fallout shelters for elected officials?

Mr. MCLOUGHLIN. Senator, the emergency operating centers are 50–50 shared funding. That is what the law provides.

Senator PROXMIRE. Do you have any indication that the money will be forthcoming from cities and towns and villages and so forth?

Mr. MCLOUGHLIN. Yes, sir. When the program was terminated in 1985, we had about 80 design projects on the books at that time, commitments on the part of local governments to build EOC's.

Senator PROXMIRE. Eighty isn't very many, is it?

Mr. MCLOUGHLIN. We can't bring many more than that on line in anticipation of the funding levels that had been provided.

COSTS OF EMERGENCY OPERATING CENTERS

Senator PROXMIRE. I beg your pardon. According to a review paper the staff received on Wednesday, March 18, FEMA wants to build 757 of these fallout shelters or emergency operating centers for public officials by 1992, and then beyond 1992, the planning document proposed building 2,643 of these shelters for public officials. So it would cost the taxpayers a total of $1.5 billion to implement your entire civil defense issue in 1992, including over $250 million for the 757 shelters.

How much would it cost to build the remaining 2,643 shelters, or about four times as many. Would it cost four times as much, or $6 billion?

Mr. MCLOUGHLIN. Senator, it costs us, on the average, about $135,000 to build one of the local fallout protected EOC's, including the equipment. One of the reasons we prioritized 600 is so that there is some dis-

tribution of the emergency operating centers across the country. We are not sure that we would go beyond the 600 right now.

Clearly, there is a need for additional emergency operating centers, but we may not have to build them at all. We may simply use what is available in the communities or do some minimum upgrading.

Senator PROXMIRE. I suppose you are in a difficult position, and I don't mean to be unfair, but you have a situation in which the more shelters you build, the more it costs, and the fewer you build, the fewer people you protect. And the more, the less popular it is on either account. Either you are spending too much money or you are protecting only a tiny percentage of the people.

Mr. MCLOUGHLIN. Senator, may I point out once again that the emergency operating centers are for officials and emergency services people at the local level. It seems like we might have left the impression that there is not shelter for the general population. We have well over 200 million shelter spaces in the United States where people, at least the half of the people that I talked about earlier, can survive. Fallout shelters can assure their continued survival if they survive the direct effects.

Senator PROXMIRE. How many million?

Mr. MCLOUGHLIN. We have surveyed 1.6 million facilities, and we have over 200 million fallout shelter spaces identified. These are maldistributed, but we are working on identifying additional shelters that can be quickly upgraded.

Senator PROXMIRE. I am going to yield to Senator Mikulski, but I would say the bottom line is that the general population, people other than the politicians who would have the fallout shelters, would get self-help guides.

Mr. MCLOUGHLIN. Senator, even with the fallout shelters, people need that self-help information about how to obtain food and water, what precautions need to be taken, even if they are in fallout shelters.

Senator PROXMIRE. Senator?

TRAINING FOR HAZARDOUS MATERIALS ACCIDENTS

Senator MIKULSKI. Thank you very much.

I would like to come back to preparedness in another area. I agree that you do need exercises. I certainly know what it has meant to Maryland to do those hurricane exercises. We know what it meant to Mayor Feinstein to do the earthquake exercise and pull out the force in San Francisco. I think she was most appreciative of that.

Therefore, this takes me to a question about chemical incidence. We want to make sure that there is no Bhopal in the United States. Some questions, then, go to plant safety and management within the plant.

But my question will go to what type of training and coordination occurs in those areas that we could call chemical corridors. For example, in West Virginia, where there are a string of plants, where we know that the odds may not point to an ecocatastrophe, but certainly an ecoincident, and then what type of preparedness is in place, what type of coordination goes on, because sometimes, as I am sure you have found

General BECTON. It has been all hazards. That is our approach.

Mr. MCLOUGHLIN. You asked specifically about training. In addition to the training that is offered at the National Fire Academy in the hazardous materials area, the new Superfund authorization bill provides for $5 million for FEMA to administer each year over the next 4 years for training in the chemical and hazardous materials areas. There is still a question about whether or not those funds have to be appropriated separately to FEMA or will come out of Superfund. But, once that gets settled, then the funds will be channeled through to places like you talked about.

Senator MIKULSKI. My last question: does your FEMA person or the person on the scene in these at-risk areas, are they encouraging the local fire departments and officials to take advantage of this training? Is this a high policy priority?

Mr. MCLOUGHLIN. Yes; within the Fire Academy there is emphasis on hazardous materials and hazardous materials training.

EMERGENCY MANAGEMENT AT LOCAL LEVELS

Senator MIKULSKI. You don't understand. I am going to conclude with this. I don't want to prolong the subcommittee. When I went to West Virginia as part of the Commerce Committee, after Bhopal, I found a dismal situation.

I found the local firefighters, again, those heroic volunteer fellows that we know about, didn't know about what was going on in the factory, didn't know what type of chemicals were in the factory and didn't have the extra equipment to deal with a chemical fire.

As you know—you are national experts—a chemical fire is different than a wood fire, and you just can't put water on it. Most of the times you add water it exacerbates the problem. There was no coordination. Whoever was in charge of the preparedness out there had not taken the responsibility of saying to the local volunteer fire departments, "Let's get together with the business community, find out what the hell they have in there, and then get you guys training and equipment to do it. Perhaps even Union Carbide or DuPont or whatever would even buy us the special masks or whatever."

You can't do this just on bake sales. Second, we found that the coordinators hadn't coordinated with the coordinators. The school people hadn't. There had not been a coordinated plan, nor had there been an exercise. All the children were going to go to another school; no one had told the parents that in the event of something occurring, "Your child will go to PS–32 in Bronxville," because you know parents will kill or panic to get to their children.

That had not occurred. I am looking for a coordinated approach—transportation, fire fighting, parental preparedness, schools involved—so that if there is an incident, if there is a catastrophe, that there would be this. I found that the people hadn't talked with each other, nor had there been a plan on that: how to evacuate the elderly. There were three nursing homes in that area. Nobody thought how they were going to get them out.

General BECTON. Senator, we hear what you are saying, and we are encouraging all state and local governments to take advantage of the instruction that we are providing at Emmitsburg to do those things.

Senator MIKULSKI. The FEMA person on the scene, whether that is in Maryland or West Virginia, works for you or works for the state government?

General BECTON. There is no FEMA person on the scene specifically in a state activity or local government. Where the FEMA person is, in the West Virginia case, as is true for Maryland, is the region in Philadelphia. Region III is where we provide assistance to these states.

The people we are talking about that are the members of the community are emergency managers that work for the mayor, city manager, state, or whatever. We are working very hard with the National Coordinating Council on Emergency Management, the emergency managers, and also with the National Emergency Management Association, which are throughout the entire United States.

They are working with us. We are working with them to bring about a professionalism to accomplish exactly what you are prepared to do.

Senator MIKULSKI. General, Mr. Chairman, if you could send me a paper on exactly how this works at the local level, starting at the region down, please provide that. That would be a big help, so when we continue these discussions, I will know my part of it.

General BECTON. Thank you very much.

CONCLUSION

Senator PROXMIRE. Thank you, and thank you, Senator Mikulski, for an excellent statement. You have certainly been very helpful to the committee in your questions and the responses.

General Becton, I have no more questions at this time. I have some questions for the record I would like to submit. You have a distinguished group of assistants here. We haven't said much and asked much because we were limited on time, and I wanted to get into the area that we did cover intensively.

We haven't asked much about the Fire Administration or about the federal insurance or about food and shelter, and so forth. So if any of you experts would like to comment on this for us, we would be happy to do it. We haven't given you a chance to show your stuff.

General BECTON. I don't see any volunteers, sir. [Laughter.]

Senator PROXMIRE. Well, that is the old army story, you know, "Never volunteer."

General BECTON. We would be happy to respond to your questions, sir.

Senator PROXMIRE. Thank you. Thank you very much. Although we have differences, obviously, on this, I think you did an excellent job today, and I appreciate it.

SUBMITTED QUESTIONS

[The following questions were not asked at the hearing but were submitted to the Agency for response for the record:]

Questions Submitted by Senator Proxmire

PROCUREMENT

Question: Closing out contracts is not a FEMA priority as reflected in an October 1986 FEMA task force report that claims over a thousand old contracts are awaiting closeout. A senior FEMA official stated that staffing restrictions have made the obligation of new funds the top contracting priority over contract closure and other administrative functions.

Do you expect to award all available funds this year as well as ensure proper contract administration including the timely closeout of contracts?

Answer: Currently the FEMA Office of Acquisition Management is essentially fully staffed up to its authorized strength, with the exception of two clerical support positions. Over the past year, this office has also been implementing an automated system for the production of procurement documents. Finally, our advance procurement planning system is becoming a more useful planning tool as we develop more accurate information on the allocation of procurement dollars each year. We believe that with the recent hiring of seven new Contract Specialists and three new clerical support personnel, and with increasing familiarization with our automated system, we will be able to increase our efficiency and effectiveness in obligating all of the procurement funds made available in this fiscal year.

In order of priority, the obligation of new funds is clearly the top activity of this organization. Contract administration activity, which does not involve obligation of new funds, and contract closeout -- a subset of contract administration activity -- are next in order of their respective priorities. No one of these activities is ignored or neglected within the capacity of the existing staff. Clearly, most activity is focused on obligation of new funds and much anticipatory work is directed toward the goal of obligating all new funds.

Contract administration including contract closeout activities is mostly reactive. That is to say that such activity is normally pursued only in response to urgent requirements or, on occasion, when there is a lull in contract placement activity. At these times efforts will be directed toward reducing backlogs of requirements for administrative modifications or contract closeout not requiring new money obligations. It should also be pointed out here that the contract closeout activity is often used for on-the-job training for new contract specialists.

Question: Exactly how many contracts require closure and what are the associated dollar amounts involved?

Answer: As of December 31, 1986, 1,771 contracts, grants, cooperative agreements, and interagency agreements had expired and had not been closed out. Many of these instruments, since they are fixed-priced contracts, interagency agreements, grants, and cooper-

ative agreements, involve little time to closeout. Most of the staff resources would be concerned with the cost reimbursement contracts. These 1,771 instruments involve obligated dollars of $426,897,655.

More importantly, because our experience has shown that more often than not the government owes the vendor funds after final audit rather than the vendor owing the government funds, in net terms we estimate that there are no outstanding dollars owed to the government on these instruments.

Question: Procurement activities also take place at FEMA's Special Facility, National Emergency Training Center, and ten regional offices. How many workyears will be committed to procurement activities at these non-central locations this year?

Answer: Approximately 25 workyears of effort are currently committed to procurement activities at FEMA's Special Facility (SF), National Emergency Training Center (NETC), and the ten regional offices this year.

The SF procurement activity is expected to expend about two workyears in awarding contracts, small purchases, and special acquisitions in direct support of the SF requirements.

The NETC procurement activity is expected to expend about eight workyears for awards in support of training activities, site operation and maintenance, student support services, and building maintenance and rehabilitation at NETC.

Each regional office is expected to expend about one and one-half workyears for awards of small purchases, disaster contracts as needed, and operation and maintenance of Federal Regional Center buildings, where appropriate.

MISSING CONTRACT ACCOUNTS

Question: Many of FEMA's flood insurance study contracts have not been closed in a timely manner according to FEMA officials. In February 1986, an estimated 192 open contracts needed to be closed out, of which 32 showed no existing accounts in the computerized accounting system. FEMA headquarters officials indicated that the 32 contract accounts, which were initiated prior to 1979, were missing from the system because they were inherited from another agency during FEMA's formative years. They noted that this problem may exist in other program areas as well. The Inspector General is currently conducting an audit of flood insurance study contracts.

How much funding is involved in the 32 open contracts awarded in 1979 or earlier? What progress has been made in closing these accounts?

Answer: In January 1986, the Office of Acquisition Management (OAM) identified 32 open flood insurance study contracts initiated in 1979 or earlier, for which fund accounts could not be found in the automated accounting system. In February 1986, the Federal

Insurance Administration (FIA) contacted 30 of these contractors and found that 12 claimed funds were due them totalling $387,000. However, many of the contractors did not include additional amounts for undetermined overhead adjustments. FIA estimates that funding in excess of $400,000 is owed on these contracts.

OAM estimates that 8 of the 32 contracts have been closed out and significant progress has been made on closing out the remaining contracts. Employee overtime has been authorized so that the remaining contracts can be closed out as quickly as possible.

Question: Can you account for all currently open flood insurance contracts and their expected closing dates? How many new contracts are proposed for this year? What progress has been made in the last year in closing out contracts?

Answer: The OAM can account for and does track flood insurance contracts when the performance period has expired. In February 1986, OAM estimated that about 250 flood study contracts remained open, even though only approximately 100 were active. The performance period on most contracts is approximately 24 months. Following the completion of the contract requirements, a final audit is performed, accounts settled, and the contract is closed out. OAM estimates that approximately 100 contracts were closed out in FY 1986, which is double the number of new contracts started that year. However, a significant backlog of contracts awaiting closeout continues to exist. The FIA anticipates approximately 30 new contracts in FY 1987.

Question: What other program areas have 1979 or prior year contracts that remain open? How many contracts and what level of funding is involved?

Answer: Excluding the flood insurance program, programs in four other Directorates have 1979 or prior year contracts that remain open. These Directorates include: the National Preparedness Directorate, Emergency Operations Directorate, State and Local Programs and Support Directorate, and Management and Administration. There are 21 contracts involved in these four program areas totalling $1,517,880. As has been mentioned, our experience indicates that there are probably, in net terms, no dollars outstanding owed to the government on these 21 instruments.

Question: What progress has been made in the Inspector General's audit? When might we expect the final results of this audit?

Answer: The survey was recently completed and the audit work initiated. A draft audit report should be issued in late FY 1987.

STAFFING

Question: In November 1986, a FEMA procurement task force reported on a number of concerns including staffing levels in the headquarters office of Acquisition Management. The task force

concluded that staffing must not fall below 36 FTEs (averaged over four years) and recommended 41 FTEs for fiscal year 1988. The fiscal year 1988 request for Acquisition Management is for 34 FTEs. According to a senior FEMA official, this office currently has 29 employees of which seven are relatively new contract specialists at the GS-7 and GS-9 levels who will require training.

What is the basis for the fiscal year 1988 staffing request for the office of Acquisition Management?

Answer: The FY 1988 staffing request for 34 workyears was based upon providing the most appropriate staffing to support program requirements through the placement of contracts, consistent with the Federal Acquisition Regulations, the Competition in Contracting Act, and the Balanced Budget and Emergency Deficit Control Act of 1985 (Gramm-Rudman-Hollings). Based upon a five-year projected decline in the Agency's procurement budget, the strength proposed for the Office of Acquisition Management for FY 1988 is projected to be the 34 workyears requested.

The task force's recommended staffing at 41 workyears for FY 1988 was based largely upon a statistically normal workload of staff ratio cited in a recent report by the Cabinet Council on Management and Administration. It did not take into account either declining budget projections or the improved efficiency and effectiveness of the procurement workforce, which we hope will result from the full implementation of a new automated system for procurement document production.

Question: What is the expected impact of the fiscal year 1988 request being seven workyears below the level recommended by the task force?

Answer: The expected impact of the FY 1988 request for 34 workyears for the Office of Acquisition Management (OAM) versus the recommended number of 41 would normally be felt in the lowest priority activities of this office, contract closeout. However, the task force which recommended the figure of 41 workyears also recommended that funds be transferred from program accounts to the OAM Salaries and Expenses account to procure a contract for much of the closeout activity. We are currently exploring techniques to effect this fund transfer for a major effort to reduce the backlog of contracts to be closed. If we are successful, we expect little or no impact to be felt on the procurement workload requirements.

Question: What effect has the loss of experienced staff and influx of new and untrained employees had on Acquisition Management's capabilities?

Answer: The Office of Acquisition Management, like most contracting activities of civilian agencies and departments, has been experiencing high turnover rates among its better trained, more experienced staff for several years now. Fortunately, the Agency has been able to retain a stable, highly effective management corps in this office. Through their diligent efforts in providing on-the-job training and guidance to new employees, who have been selected for their motivation and professional interest in the

procurement function, as well as a reasonably sound background in this area, the loss of capabilities to this office has been minimized to the very short term. Most new employees have become fully functional in a matter of only a few short months, grade notwithstanding.

SOFT OPTIONS

Question: A problem the office of Acquisition Management has been addressing concerns soft or unpriced options. Contracts with soft options typically contain a clause that allows the government to extend a contract simply by providing written notice to the contractor with an agreement to negotiate the terms and conditions of the extension. These unpriced options are noncompetitive contracts but are not always recognized as such.

What has been the result of FEMA's review of soft options in their contracts?

Answer: In early 1986, the OAM reminded every FEMA contracting activity that unpriced options are noncompetitive procurements and must be justified to the same extent as any other noncompetitive procurement. In addition, we asked for feedback as to whether this would create any unusual contracting problems. The feedback we received was that it was not a serious problem, but there was a recognition that in the past there had been abuse of unpriced options. In October 1986, OAM issued a notice to every FEMA employee that our policies prohibitied exercising unpriced or soft options.

Question: Is there an accounting of the contracts containing soft options and the potential value of those options?

Answer: Acquisition Management has made no attempt to quantify the number of soft options in our contracts. We believed this was unnecessary in that we had established a firm policy that only priced options would be exercised. Where soft options had been written into old contracts, these options would not be exercised as unjustified sole source procurements. We are of the strong opinion that this policy has proved to be very effective.

Question: What remains to be done in this area? When will it be accomplished?

Answer: Nothing remains to be done in our opinion. Our policies are clear. We have no indications that a soft option has been exercised on any of FEMA's contracts in over a year. Moreover, our contracting officers no longer write soft options into FEMA contracts.

SES POSITION REVIEW

Question: In August of 1986, FEMA's Executive Resource Board prepared a report on its evaluation of Senior Executive Service (SES) positions. The Board noted that of 57 established SES

positions, 12 (or about 20 percent) are not justified at the SES level. Further, the Board found SES position descriptions are generally in poor shape.

What action has the Agency taken to align the number of SES positions with those that can be justified at the SES level?

Answer: Five of the 12 positions that could not be sustained as a result of our review of SES positions were either vacant at the time of the review or have become vacant since the review and have been cancelled.

To date, no action has been taken to cancel the remaining seven positions. It is our intent to address these positions as they become vacant either by reassignment of the incumbent or by attrition. We have postponed any action to cancel these positions until the realignment of our training functions and our merger of National Preparedness and Emergency Operations programs is completed.

Question: What is FEMA's current SES on-board strength? Expected level at the end of this fiscal year? Estimated for fiscal year 1988?

Answer: FEMA's current SES on-board strength is 47. We estimate that our SES on-board strength will increase to 52 by the end of this fiscal year. We do not anticipate any significant change in the end of FY 1987 level for FY 1988.

REGIONAL OFFICE POSITION REVIEWS

Question: The Office of Personnel Management issued a report in September 1984 on position management and classification in seven of FEMA's regional offices. OPM found 95 positions overgraded out of 158 evaluated. They also reported that many position descriptions were not accurate and overly general.

How does FEMA's average grade for full-time permanent employees compare to the government-wide average?

Answer: FEMA's average grade is 10.5. The government-wide average is 8.7 (OPM September 1986 data). FEMA ranked 9th among 12 mid-size agencies with average grades ranging from 7.77 to 11.13 (OPM March 1986 data).

Question: To what extent are the position descriptions of FEMA's GS and GM employees in both headquarters and the field accurate and current?

Answer: As a result of OPM audits, consistency reviews, classification studies/surveys, reorganization/realignments, and routine classification actions, we have reviewed approximately 800 position descriptions affecting approximately 70% of our workforce since March of 1986.

FUNDING SOURCES FOR REGIONAL ADMINISTRATIVE COSTS

Question: In 1988, you are requesting 367 workyears and almost $35 million for the Management and Administration activity, which is for the general management and administration of the Agency in areas such as financial management and other support activities. Yet, it is my understanding that over 100 workyears for regional administration are funded under a program area--Civil Defense.

What is the rationale for funding regional administration under Civil Defense?

Answer: The answer to this question is historical in nature. When the Federal Emergency Management Agency was formed from five separate agencies in 1979, only the Defense Civil Preparedness Agency (DCPA), responsible for the Civil Defense program, had a Regional administrative component. DCPA, at the time of FEMA's formation, had a budget structure which did not differentiate between program funding and Salary and Expenses funding. Subsequently, in 1983, FEMA went to program based budgeting which also aligned Salaries and Expenses funding with the appropriate program line items. Hence, regional administration funding and personnel were carried properly under Civil Defense, State and Local Emergency Management

Question: To what extent is regional administrative funding and workyears expected to be supported under the Civil Defense program area in fiscal year 1987? In fiscal year 1988?

Answer: In FY 1987, consistent with our operating plan, regional administrative funding and workyears are expected to be supported under the Civil Defense program area. In FY 1988, it is our intention to support regional administration under the Civil Defense program.

Question: How many of the requested 367 workyears and associated costs for management and administration are for FEMA headquarters?

Answer: Of the 367 workyears requested for management and administration in FY 1988, 353 are in FEMA headquarters.

FEMA -- SALARIES AND EXPENSES

Question: I understand that you were forced to implement a reduction in force last year, is that correct?

Answer: Yes, FEMA conducted a RIF in 1986.

Question: Last year you estimated you would have full-time equivalent employment of 2,298 in 1986. You ended up with only 2,194 full-time equivalent employment, a shortfall of 104 positions. You also turned $1.6 million in salaries and expenses money back to the Treasury.

Why did you undertake a reduction in force in a year when you were understaffed and overfunded?

Answer: At the beginning of FY 1986, hiring freezes and passive staffing reductions through attrition in part of 1984, most of 1985, and part of 1986, had resulted in total staff levels within FEMA's overall FTE and compensation ceilings, but not within activity and program appropriated levels. A RIF was conducted in those activities still over-strength; employees were reassigned to budgeted vacancies where possible, all programs were brought within acceptable staffing levels, and FEMA was able to hold employee separations to 41. Of these 41 employees separated, 29 were in FEMA headquarters and 12 were in the field. At this point, efforts to fill our remaining budgeted vacancies are underway.

In the FY 1987 budget request, FEMA estimated Salaries and Expenses obligations of $118,104,000, after a $5,306,000 Gramm-Rudman reduction to that appropriation. The Agency's actual 1986 expenditures were $119,469,000 in Salaries and Expenses.

A supplemental transfer of $2,920,000 from the 1986 Emergency Management Planning and Assistance (EMPA) appropriation into Salaries and Expenses funded the shortfall and provided the remainder of $1,555,000 returned to Treasury at the end of 1986.

Question: If we were to budget for a shortfall of 100 positions next year, how much would we be able to cut from your request?

Answer: FEMA is in the process of staffing up to its 1987 appropriated FTE levels, and intends to fill all budgeted positions by the close of FY 1987. Therefore, the net savings from the 100-FTE reduction posited would depend directly on when such a reduction was enacted. If FEMA's FY 1987 appropriations bill were enacted prior to the beginning of FY 1988, offers of employment could be withdrawn and unfilled positions could be eliminated at a full savings of one FTE per position and associated costs. If the posited FTE reduction were appropriated after the close of FY 1987, a RIF would become necessary, with such associated costs as severance pay, payment of lump-sum annual leave, and retention of higher-graded employees in lower-graded positions. For a 100-FTE cut, of course, the number of positions which would need to be eliminated would depend directly on how much of FY 1988 had elapsed at the time the cut was enacted; a later cut would require elimination of more positions, with an accompanying rise in per-employee costs of separation. If such a cut were enacted in April, 1987, the Salaries and Expenses savings to the 1988 request would be approximately $500,000.

FEMA -- SALARIES AND EXPENSES

Question: You are requesting $131,544,000 in the coming fiscal year for salaries and expenses, an increase of $7,554,000 over your current level of funding. Frankly, it's a little difficult to track your salaries and expenses request because your justifications seem to be comparing apples and oranges. Let me explain what I mean.

On page SE-3 of your justifications you show a decline of 199 workyears between fiscal years 1987 and 1988 but my understanding is that your 1988 estimate does not include 203 workyears funded through the National Flood Insurance Fund. If we factored those positions into the picture your employment would be up by 4 positions, isn't that so?

Answer: Including the 203 workyears requested to be funded through the National Flood Insurance Fund, FEMA's 1988 FTE request totals 2,409, an increase of 2 FTE from the 1987 current estimate of 2,407.

Question: Why can't you give the subcommittee information on a comparable basis? Couldn't you at least footnote your material so that it would not be misleading?

Answer: FEMA's annual budget request to the Congress includes a booklet entitled "The FEMA Budget in Brief." Page 3 of this booklet (attached) provides the summary you request.

SALARIES AND EXPENSES -- NON-PERSONNEL COST

Question: Turning to Salaries and Expenses (p SE-4), you spent $6.9 million in 1986 for communications, utilities, and miscellaneous charges. You are requesting about a 60 percent increase (an additional $4 million) for these charges in 1988.

Similarly, you spent $9.1 million for civilian personnel benefits in 1986, and are requesting a 42 percent increase or $12.9 million in 1988.

What accounts for an expected increase of almost 60 percent since 1986 for communications, utilities, and miscellaneous charges?

Answer: The 1987 budget request anticipated that indirect costs associated with disaster assistance would be charged to the Disaster Relief Fund; instead, Congress appropriated funding for these costs to FEMA's Salaries and Expense account.

In addition, funds to provide for the lease of computers in the Government Preparedness program were originally requested under Object Class 25, Other Services, and have now been more properly assigned to Object Class 23.3.

Question: Since the workyears are expected to be relatively constant from 1986 to 1988 (2,194 WY's in 1986 vs 2,202 WY's requested in 1988), what accounts for a civilian personnel benefit increase of over 40 percent?

Answer: FEMA's estimate of its civilian personnel benefits requirements in FY 1988 is intentionally conservative. It may or may not be adequate to support the 2,202 workyears requested under Salaries and Expenses, because of the potential costs of the Federal Employees Retirement System (FERS) plan implementation, to begin in mid-1987.

FEDERAL EMERGENCY MANAGEMENT AGENCY
Appropriation Summary by Program Structure
1988 versus 1987
(Dollars in Thousands)

	1987 Current Estimate				1988 Request				Increase/Decrease			
	WY	S&E	EMPA	TOTAL	WY	S&E	EMPA	TOTAL	WY	S&E	EMPA	TOTAL
Civil Defense	489	$27,349	$112,042	$139,391	489	$28,940	$105,866	$134,806	...	$1,591	($6,176)	($4,585)
Comprehensive Emergency Prep. Plng.	63	3,292	6,203	9,495	61	3,044	5,693	8,737	(2)	(248)	(510)	(758)
Radiological Emergency Preparedness	70	3,306	4,081	7,387	70	3,511	4,081	7,592	...	205	0	205
Federal Preparedness	869	42,640	124,174	166,814	895	46,375	150,444	196,819	26	3,735	26,270	30,005
Training and Fire Programs	101	4,838	15,500	20,338	97	4,810	10,766	15,576	(4)	(28)	(4,734)	(4,762)
Flood Plain Management	152	*	*	*	...	...	...	...	(152)	...	...	...
Disaster Relief Administration (S&E)	233	9,371	...	9,371	217	9,923	...	9,923	(16)	552	...	552
Insurance Activities (S&E)	51	*	*	*	...	...	...	...	(51)	...	...	...
Emergency Food and Shelter (S&E)	6	160	...	160	6	170	...	170	...	10	...	10
SUBTOTAL, EMERGENCY PLANNING, ASSISTANCE AND SUPPORT	2,034	90,956	262,000	352,956	1,835	96,773	276,850	373,623	(199)	5,817	14,850	20,667
Management and Administration	367	33,044	...	33,044	367	34,771	...	34,771	...	1,727	...	1,727
TOTAL, FEMA OPERATING ACCOUNTS	2,401	124,000	262,000	386,000	2,202	131,544	276,850	408,394	(199)	7,544	14,850	22,394
National Insurance Development Fund	6			...	4			...	(2)			...
National Flood Insurance Fund	...			...	203			...	203			...
Disaster Relief Fund	...			120,000	...			125,000	...			5,000
Emergency Food and Shelter	...			70,000	...			80,000	...			10,000
TOTAL, FEMA APPROPRIATIONS	2,407			576,000	2,409			613,394	2			37,394

* An unobligated balance transfer of $54,500,000 from the National Flood Insurance Fund is distributed as follows:

	S&E	EMPA	TOTAL
Flood Plain Management	6,613	45,200	51,813
Insurance Activities (S&E)	2,687	...	2,687
Total, transfer of unobligated balance	9,300	45,200	54,500

An additional $4,522,000 is available for obligation in Flood Plain Management from funds which are available through 9/30/87.

Using OMB rates and assumptions*, for employees whose government service began later than December 31, 1983, the Agency would be required to contribute to benefits at a rate 17% higher than the 1986 rate. Benefit costs for CSRS-covered employees who switch to FERS would be 18% higher than current costs. Using the OMB projections of FERS participation, 1988 benefits would need to be 19.5% of payroll.

Because FEMA assumed a lower percentage of employees would switch to FERS based on on-board employees, FEMA estimated 1988 benefits at 15.7% of payroll, a conservative estimate which may or may not be adequate to cover actual FY 1988 civilian benefit costs. Under OMB assumptions, 48% of FEMA employees would participate in FERS in 1988, and the total required for civilian benefits under Salaries and Expenses would be $16,072,000, a difference of $3,176,000 from the 1988 requested level of $12,896,000. Actual experience with the system is necessary to make more accurate predictions of the cost of FERS.

*1988 employer costs of FERS alone as % of salary:

Social Security (OASDI only)	5.97%
FERS annuity	14.97%
Thrift plan matching funds	3.00%
Retirement costs	23.94%

Does not include Medicare tax, health insurance, etc.

SALARIES AND EXPENSES -- SPLIT WORKYEARS

Question: On October 1 of 1984, a new Integrated Staffyear Information System (known as ISIS) became operational. ISIS was supposed to account for staff hours worked by employees that devoted their time to more than one program within a given time period.

I understand that you discontinued ISIS last month. Can you tell us why?

Answer: ISIS did not facilitate the control of workyear expenditures, but simply reported how time was charged. When polled, program and Regional managers said the system had minimal utility for them as managers.

Question: Is it true that you plan to initiate a labor distribution system being developed by the Treasury Department?

Answer: Yes. The labor distribution system is part of the Federal Standard Civilian Pay System (FEDSCPS) being developed by the Department of Treasury.

Question. When will the new system be in place?

Answer: According to information received from the Department of Treasury, the new system should be in place by 1990. Implementation will start in December 1988. FEMA is expected to be on the

system in 1989.

Question. How will FEMA track split workyears prior to the initiation of the new system?

Answer: FEMA has developed a Position Management System which assigns program FTE on a position-by-position basis, and which tracks FTE utilization and associated costs to a greater degree of accuracy than previously possible.

SALARIES AND EXPENSES -- COMMUNICATIONS, UTILITIES, AND MISCELLANEOUS CHARGES

Question: General Becton, in last year's Budget Appendix you projected the obligation of $6,618,000 in fiscal year 1987 for communications, utilities and miscellaneous charges under your salaries and expenses account. This year's Appendix has re-estimated that figure upward to $10,689,000.

Why was the initial estimate over $4 million too low?

Answer: The 1987 budget request anticipated that indirect costs associated with disaster assistance would be charged to the Disaster Relief Fund; instead, Congress appropriated funding for these costs to FEMA's Salaries and Expenses account.

In addition, funds to provide for the lease of computers in the Government Preparedness program were originally requested under Object Class 25, Other Services, and have now been more properly assigned to Object Class 23.3.

SALARIES AND EXPENSES -- EQUIPMENT AND RENT

Question: Last year your salaries and expenses estimate for fiscal year 1986 included $547,000 for equipment. Your final expenditures for equipment totalled $2,854,000. Why was your initial equipment estimate so wide of the mark?

Answer: In 1986, approximately $2,227,000 was obligated for automatic data processing (ADP) equipment. The remaining $627,000 was used to purchase books, office and dormitory furniture, typewriters, calculators, safes, printing equipment, and miscellaneous other equipment whose purchase had been deferred from 1985 (when obligations under this Object Class were held to roughly half the amount budgeted).

Question: Last year's salaries and expenses estimate indicated you would spend $7,785,000 on standard level user charges (i.e., rent) in fiscal year 1986 and $9,107,000 in fiscal year 1987. This year's budget shows actual rental costs of $6,861,000 in 1986 and an estimated rental expense of $8,573,000 in the current fiscal year. Why were your initial estimates so much higher than your current figures?

Answer: In 1986, FEMA's total actual obligations in Standard Level User Charges (SLUC) came within $1,000 of the $7,785,000 estimated for that object class: $6,852,000 was obligated against FEMA's Salaries and Expenses appropriation and $934,000 in obligations for indirect support of disaster activities was charged against the Disaster Relief Fund, a total of $7,786,000.

FEMA's 1987 SLUC request anticipated the necessity for 639,000 sq.ft. of space. FEMA has been able to implement space reduction plans both in its Headquarters and in four Regions, which have resulted in a current estimate of 598,000 sq.ft. to be rented.

INSPECTOR GENERAL

Question: You are requesting a total budget of $2,365,000 for the activities of your Inspector General in the coming fiscal year, an increase of $100,000 above your current budget. Staffing would remain at the current level of 45 workyears.

Last June the General Accounting Office issued a report that was highly critical of your agency's dealings with its Inspector General. The report stated that the independence of the staff was allegedly impaired by the actions of non-IG personnel.

Apparently, the former IG was asked to transfer because of (1) a review of consulting hiring practices that found the intent of the competitive hiring process had been circumvented by high-level officials at both headquarters and the National Emergency Training Center and (2) an inquiry involving the acceptance of gratuities from FEMA contractors by the former Director of FEMA and a high-level employee, the cost of which were billed to FEMA.

Can you tell us what steps you have taken since that report was filed to insulate your Inspector General from improper pressures?

Answer: In my response to the GAO report, submitted to the Chairmen of the Senate Appropriations and Government Affairs Committees on August 27, 1986, I addressed this matter. I will continue to stand by my assurance given in that response, i.e., "I assure you that I plan no such reassignments [of the Inspector General] without communicating my reasons to appropriate Administration officials and Committees of Congress."

The Inspector General reports directly to me. As such, no FEMA officials have authority to interfere with the work of that office. My senior managers are aware of the fact that I personally support our IG's effort and that I would never tolerate anyone trying to apply pressure to have the IG "back off" an assignment. As a former General, I have, on many occasions, had Inspectors General reporting to me. I never interferred with their work then, no matter how controversial or potentially embarrassing, and I do not intend to interfere with their work now.

Question: Do you support the enactment of legislation that would create a statutory office of the Inspector General at FEMA?

Answer: Yes. However, I support legislation which would provide for the Inspector General to be appointed by the Agency Head, rather than the President. Such legislation was under consideration by the 99th Congress.

Question: In describing your Inspector General's 1986 activities your justifications refer to an audit report on the Director's Representation Fund. Can your IG tell us about the fundings of that audit?

Answer: Audit Report No. H-7-86 on the Director's Representation Allowance was issued October 28, 1985. The review covered FY 1984 and part of FY 1985. Most of the expenditures were for food stock items, which presumably were used at official representation events. The justifications on the reimbursement vouchers were insufficient to support that the expenditures were only for official representation events. However, the Office of the Inspector General (OIG) did not identify any instances where the expenditures were not for official business. The OIG recommended that the Office of the Comptroller adopt official instructions on the use and accountability of the Representation Allowance. The Agency Instruction was issued July 14, 1986.

Question: Your justifications also refer to an audit report on amounts owed to FEMA by two former officials. Could you summarize that report for us?

Answer: The OIG issued Audit Report No. H-13-86, Review of Invitational Travel Extended to the Wife of FEMA Former Director, on May 6, 1986. The OIG found that there was no evidence that the wife of the former Director provided a direct service or performed offical business on two trips to foreign countries. The OIG recommended that the former Director pay the Federal Government $5,091 as reimbursement for his wife's airfare. The former Director has paid this debt in full.

The OIG also issued Audit Report No. H-8-86, Review to Determine Amount Due FEMA From the Former Associate Director for Training and Fire Programs, on February 5, 1986. In this review, the OIG found evidence that the former Associate Director utilized FEMA resources and facilities for personal purposes and recommended that the Agency initiate recovery action for approximately $6,800 as follows:

° unofficial and/or undocumented use of government vehicles and for parking tickets that FEMA paid on his behalf ($6,456);

° lodging accommodations he was provided at FEMA's National Emergency Training Center ($270); and

° personal telephone calls made from Government lines ($74).

FEMA's Office of the Comptroller has made numerous attempts to recover this amount or obtain additional explanatory documentation from the former Associate Director. After being informed that FEMA was initiating action to deduct this debt from his military pay, the former Associate Director requested a hearing which was held on

March 27, 1987. The hearing officer will probably render a decision in April 1987.

INSPECTOR GENERAL -- UNDERSTAFFED

Question: The GAO report I referred to earlier indicated that your Inspector General has estimated that he needs a total staff of 75 to do his job adequately, and the facts would seem to bear him out. For example, the investigative case backlog increased from 200 in August 1983, to 267 in December 1984, and to 273 in September 1985, according to the GAO report. Your justifications indicate the backlog continues to increase, with 306 pending cases at the end of fiscal year 1986. Furthermore, a study of your system by an investigator from the Immigration and Naturalization Service found that there was a significant number of cases with no investigative actions for 1 to 2 years. He concluded that the investigation division appeared to be significantly understaffed in light of the workload and the high degree of vulnerability to fraud and abuse associated with FEMA programs.

Why haven't you moved to augment staffing in this area?

Answer: The IG staff has been augmented since the field work for the GAO report you cited was completed in 1985. At that time, the IG had a staff of 34. It has since been increased to 45, including three investigative positions. Since then, the number of pending investigations has been reduced from 306 at the end of FY 1986 to 207 by March 15, 1987. All my managers would like additional staff. I must consider the total needs of the Agency, both program directorates and supporting staff offices, and I believe that I have allocated our resources appropriately.

INSPECTOR GENERAL -- AUDITS

Question: The GAO report indicated that your former Inspector General felt that without increased staff no audit coverage of Federal Flood and Crime Insurance Programs, National Preparedness Programs, and Emergency Operations would occur.

Can you tell us what plans you have to conduct internal audits of these programs? I'm referring to comprehensive audits, not investigations.

Answer: The National Flood Insurance Program (NFIP) has been rather extensively audited. The OIG monitored a comprehensive program review conducted by Touche Ross and Co. in 1983. The GAO issued two reports on NFIP activities in 1983 and is currently in the final stages of a review of the Write Your Own Program. Further, audit of the NFIP financial statements is conducted annually by a CPA firm.

In FY 1987, the OIG has scheduled three reviews involving the NFIP. These are: a Review of Flood Insurance Study Contracts; a Review of Purchases of Insured Properties under Section 1362 of the National Flood Insurance Act of 1968; and a Review of the NFIP FY

1986 Financial Statements Produced by Computer Sciences Corporation. Further, the OIG plans to conduct a comprehensive survey of the NFIP in FY 1988.

The OIG had planned to conduct a closeout audit in FY 1987 of the Federal Crime Insurance Program FY 1986 Financial Statements Produced by National Con-Serv, Inc. However, since the Crime Insurance Program was extended another year, the OIG has rescheduled this audit for FY 1988.

Audits of National Preparedness programs are not scheduled for FY 1987, but will be considered in developing a 5-year audit plan.

The OIG is conducting a survey of classified programs administered by the Emergency Operations Directorate; and has also scheduled a comprehensive review of the development of the Direction, Control and Warning System, a major project of the Directorate.

Question: The GAO reported that FEMA audit officials said responses to internal audit reports are often argumentative, defensive, and unclear as to what action will be taken. These auditors said that designation of a high-level management official responsible for resolution and follow-up would go a long way toward improving the degree to which audit recommendations are followed because such an individual would have authority to require action -- authority which auditors do not have.

Have you designated such an official and, if so, what is his position within your organization?

Answer: I designated FEMA's Deputy Director as the Audit Follow-up Official, effective May 1, 1986.

Question: I'd like to ask your Inspector General if he believes the conditions outlined in the GAO report continue to exist.

Answer: Some of the conditions outlined in the GAO report no longer exist, while others exist to a lesser extent. The report addressed three general issues, namely: (1) an impairment to the independence of the IG; (2) lack of audit coverage of important Agency functions; and (3) lack of effective audit resolution and follow-up.

The impairment to the independence of the IG referred to in the GAO report has been effectively removed under the present FEMA Director. The former Agency Director, on two occasions, reassigned the Inspector General to another position in the Agency, apparently for reasons other than competency or need for audit services. The current Director, in his response to the GAO report, has stated, "I assure you that I plan no such reassignments without communicating my reasons to appropriate Administration Officials and Committees of Congress." However, subsequent Directors may not feel bound by such an assurance and without appropriate legislation the impairment could reoccur.

The lack of audit coverage of important Agency functions,

referred to in the GAO report, will be somewhat lessened as a result of a recent increase in the authorized staffing of the OIG. During FY 1986, the OIG was authorized to increase its staff from 34 to 45. Audits have now been conducted of some programs identified in the GAO report as lacking audit coverage. Audits of others have since been initiated or have been scheduled. There still remain many areas of Agency programs and operations that have not been audited. The OIG will develop, by the end of FY 1987, a 5-year audit plan which will schedule important functions for audit, within available resources.

The considerable number of pending investigations at the end of FY 1986, referred to in the GAO report, has been reduced from 306 to 207 at March 25, 1987.

The OIG still estimates its total staff needs at 75, as reflected in the GAO report. This would provide FEMA with the audit, investigative, and other resources necessary to fulfill the intent and purpose of the Inspector General Act of 1978. However, it is recognized that the Director must consider various competing needs in allocating limited Agency resources in the best manner to accomplish the missions effectively and economically.

The third condition mentioned in the GAO report has been resolved. The Deputy Director of FEMA has been designated as the Agency's follow-up official and an audit follow-up system has been established.

NATIONAL FLOOD INSURANCE CONTRACT PROBLEM

Question: The National Flood Insurance Program (NFIP) was established to provide insurance coverage for eligible property under a government subsidized program. FEMA administers the program using a contractor to handle day-to-day insurance operations.

An internal audit showed that the NFIP contractor prior to 1983 had issued flood insurance policies to individuals who paid their premiums with checks returned for insufficient funds. The amount of the total loss resulting from these policies was estimated at $1.7 million.

FEMA had Touche Ross & Co. review the issue, and on January 4, 1985, their report concluded in part that poor filing and a lack of audit trails had caused loss of adequate control over non-sufficient fund checks, but the extent of the losses cannot be quantified by spending a reasonable amount of resources. Approximately two years later (Feb. 1987), various FEMA offices, such as the Office of Inspector General, continue to review the issue.

Why is FEMA still reviewing the issue?

Answer: FEMA is no longer reviewing the issue. The Inspector General completed his review on March 13, 1987.

Question: What has prevented FEMA from bringing the issue to closure?

Answer: The results of the review were delayed because several sources of accounting data had to be examined to determine if an adequate audit trail existed. While the review concluded that an adequate trail was unavailable, it was determined that a substantial portion of checks, thought to be insufficient fund checks, were in fact "stop payment" checks.

Question: What safeguards have been instituted, or are needed, to preclude similar contractor problems?

Answer: As part of an overall enhancement of the NFIP servicing agent's automated accounting system in 1984, the insufficient funds checks report is now generated, which identifies all returned checks. This report is tied to the NFIP policy master file and provides for automatic cancellation of a policy associated with a returned check. The current system has been reviewed as part of two separate audits conducted by independent accounting firms and has been found satisfactory.

NATIONAL FLOOD INSURANCE PROGRAM

Question: FIA established a goal for the NFIP of having 2.5 million policies in force by September 1988 as part of its plan to achieve a self-supporting flood insurance program. A major part of achieving this goal was expanded sales efforts by the Write Your Own portion of the NFIP. Under the Write Your Own program, FIA signs up private insurance companies to sell and service flood insurance under their own names in return for an administrative expense allowance. FIA pays all claims payments which exceed premium collections.

In its fiscal year 1988 budget submission, FIA estimates that it would have 2,453,000 policies in force for fiscal year 1988. FIA proposes a 17 percent rate increase in flood insurance premiums to achieve a self-supporting National Flood Insurance Fund, the financing mechanism for the NFIP, for years of average flood losses. FIA is also proposing that (1) flood management activities and (2) salaries and expenses for insurance operations and flood plain management be funded by the National Flood Insurance Fund--cost categories not previously charged to the fund.

Has FIA's lower estimate of policies in force resulted in higher proposed rates than would have been required with a 2.5 million policyholder base?

Answer: The lower estimate of policies in force has not resulted in higher proposed rates. The rate increase is intended to produce income to cover the historical average loss year and, on an average per policy, this is not influenced by the total number of policies in force. The number of policies and the spread of those policies will influence the relative amount of premium that would have to be charged to pre-fund catastrophic loss years. This catastrophic funding is not part of the FY 1988 proposal.

Question: How much of the 17 percent rate increase is needed to cover the cost categories not previously charged to the fund?

Answer: Of the 17% rate increase proposed for FY 1988, only 1.6% will be used to cover flood plain management activities. The remaining funds will be made available through reductions in the total operating costs of the NFIP.

In FY 1986, the National Flood Insurance Fund (NFIF) lost approximately $8 million, in a year in which flood insurance claims were significantly below the number expected in an average loss year. The 17% rate increase will make the program self-supporting for the average loss year. Therefore, in those years when the program experiences less-than-average claims activity, surpluses will be invested in Treasury obligations to help cover greater-than-average loss years.

Question: Does FIA plan to encourage additional companies to sign up for the Write Your Own program? How does FIA plan to encourage companies currently selling flood insurance to increase their sales effort?

Answer: As of September 30, 1986, there were 212 signed Write Your Own companies. FIA intends to increase the number of companies writing flood insurance by encouraging insurance companies with a large homeowner business to participate in the program. Thirteen of the top 20 homeowner writing companies are participating Write Your Own companies, giving Write Your Own the potential for a complete geographic spread and penetration of the market in areas where the direct program has been unable to penetrate.

Marketing strategies are discussed regularly with the companies writing flood insurance at the annual Write Your Own conferences and on other occasions. However, one of the aims of the Write Your Own Program was to harness the expertise of the insurance industry to market flood insurance. For this reason, FIA has not been directly involved in the development of Write Your Own company marketing plans.

FIA has undertaken an in-depth evaluation of the Write Your Own program and one of the components of the evaluation is to examine the marketing potential of the Write Your Own program and ways to increase the market penetration of the flood insurance program. When the results of this analysis are available, they will be shared with the Write Your Own companies for use in developing their own marketing plans.

Question: What effect has the Write Your Own Program had on the number of FIA staff needed to manage the flood insurance program?

Answer: A study of the long-term impact of the Write Your Own Program on staffing levels was conducted during FY 1984. The results of this study indicated that any new activities, as a result of Write Your Own, could be performed by on-board staff and that no increase in staff would be required. Some shifts in staff between offices may be necessary to efficiently operate the flood insurance program.

NATIONAL DEFENSE STOCKPILE

Question: On February 13 the President named FEMA Director Becton the manager of the National Defense Stockpike (NDS). NDS stores valuable resources in the event of a national emergency and presently has a 10 billion dollar inventory according to FEMA. In the past, FEMA, OMB, NSC, and GSA have all played a role in the management of the stockpile.

Can you briefly summarize what this new responsibility will entail for FEMA?

Answer: The National Defense Stockpile (NDS) Manager performs the functions of the President under the Strategic and Critical Materials Stock Piling Act. He is to provide consolidated management of the stockpile program, as well as to be the Administration's spokesman with the Congress on the NDS program.

The functions of the President under the Stock Piling Act include identifying materials as strategic and critical; determining quantities, qualities, and forms for stockpiling; overseeing operational activities such as buying, selling, storing, and upgrading; releasing stockpile materials for national defense; performing research and development on materials for national defense; overseeing financial accounts; appointing advisory committees; formulating an annual materials plan for operation of the Stockpile; and submitting a semi-annual Stockpile Report to the Congress.

Question: To what extent will management of the NDS require additional resources or affect existing FEMA resources in fiscal year 1987 and 1988?

Answer: The 2 workyears allocated in FY 1987 to NDS activities will be insufficient to support the Director's new NDS responsibilities without temporary placement of existing FEMA personnel into NDS functions prior to FY 1988. FEMA has requested a budget amendment from OMB for FY 1988, but the level of resources that will be allocated to this function has not been decided.

EMERGENCY MANAGEMENT PLANNING AND ASSISTANCE

Question: General Becton, you are requesting $287,850,000 in fiscal year 1988 for Emergency Management planning and assistance, an increase of $34,850,000 over your current budget. I note that you have returned significant amounts of money from this account to the Treasury over the past two years -- $6,010,000 at the end of fiscal year 1985 and $5,974,000 at the end of fiscal year 1986. Can you tell us why?

Answer: The unobligated balances at year end in this appropriation have represented approximately 2% of FEMA's budget authority. Given that Emergency Management Planning and Assistance (EMPA) is a one-year appropriation, FEMA regards this as a reasonably prudent margin of safety, resulting from controls over resource obligations. These unobligated balances are used to fund cost overruns on obligations incurred during the appropriation year

(e.g., 1986 unobligated balances will fund overruns on 1986 procurements), preventing the use of current-year appropriated funds to cover prior-year commitments.

Question: Suppose we cut your request by $5 million to reflect your past tendency to return roughly this amount to the Treasury. How would this affect your operations?

Answer: If FEMA's 1988 EMPA request were cut by $5 million as this question proposes, year-end unobligated balances would very likely remain at between 1% and 2% of appropriation. It is more likely that 1988 obligations would be reduced if such a reduction were imposed, otherwise, 1989 funds would have to be used to support 1988 cost overruns. In 1986, when the year-end unobligated balance in EMPA was 2% of budget authority, the EMPA appropriation had been reduced by $12.6 million under the Balanced Budget and Emergency Deficit Control Act of 1985.

COST SHARING -- RADIOLOGICAL EMERGENCY PREPAREDNESS

Question: During the fiscal year 1987 appropriation process, FEMA referred to a proposal to reimburse the Treasury for half of the cost of offsite emergency response planning relating to commercial nuclear plants. In your 1988 budget submission you are requesting $7,592,000 for this activity, but noting half the request will be offset by revenues proposed to be collected from the utilities serviced in the course of the licensing process. Further, you were requested in Senate Report 99-487 to submit a report on the issue, which you advised us would be delivered by mid-March.

Will you summarize the results of this study?

Answer: A report on the Agency's study of this issue was provided to the Congress on March 19, 1987. The major findings/recommendations of the study are as follows:

° The level of funding recommended for FEMA's Radiological Emergency Preparedness (REP) program through fee assessments from utilities is 50% of the total REP budget. Since our goal is to initiate the fee collection in FY 1988, 50% of the REP program budget for FY 1988 is $3,796,000.

° Either the NRC or FEMA, and not the Treasury, should assess fees from the utilities. Statements on the advantages and disadvantages are provided for both the NRC and FEMA. No specific recommendation is made as to whether the NRC or FEMA should assess fees from utilities. While the assessment would be made by either the NRC or FEMA, the collected funds will revert to the Treasury.

° Additional legislation is needed to provide authority for either the NRC or FEMA to collect fees on the recommended "flat-fee" basis. A copy of a proposed amendment to the Atomic Energy Act to provide authority for either the NRC or FEMA to assess fees was provided to the Congress as an attachment to the report on our study.

- A flat-fee assessment rate for the utilities is recommended. FEMA is developing a suggested annual rate basis for both utilization (commercial nuclear power plants) and production (fuel cycle facilities and material license holders) facilities. Assessment of fees on a flat-fee basis is administratively more efficient and cost-effective than assessments made on the basis of specific services rendered on an hourly rate. The FEMA report provides data on the relative costs of administering assessments on a flat-fee basis versus a specific hourly rate. As the recommended annual rate basis was not incorporated in the proposed legislation that was previously provided to the Congress, FEMA will provide such to the Congress in the near future.

Question: What are the impediments to implementation of this proposal?

Answer: There are four impediments. First, for the Administration and the Congress to agree on which agency (the NRC or FEMA) should assess fees from the utilities. Second, for the Congress to authorize legislation to amend the Atomic Energy Act to authorize the assessment and collection of fees from utilities. Third, for either the NRC or FEMA to publish a rule or an amended rule to establish the regulatory basis for assessing utility fees. Fourth, to move ahead with the implementation quickly enough to begin assessing fees for FY 1988 activities beginning in October, 1988.

Question: What is the earliest expected implementation date for cost sharing and what were the major assumptions used?

Answer: The earliest expected implementation date for this proposal, suggested by the Congressional Committee which asked for the study, is the beginning of FY 1988, October 1, 1988. We consider this a very optimistic target. Most of the assumptions for FEMA's report are contained in our answer to your first question. In addition, there are two other assumptions: First, while the percentage of the REP program budget was not recommended by the Congress, the 50% level was arrived at through discussions between FEMA and the Office of Management and Budget (OMB) in order to implement a consistent assessment level of 50% for both FEMA and the NRC. Second, the option of the Treasury assessing and collecting fees was rejected because of the judgment that the agencies that benefit from the collection of fees, and not the Treasury, should assess the fees.

DISASTER RELIEF ADMINISTRATION

Question: Last year Congress authorized 90 additional permanent employees starting in 1987 to replace Disaster Relief workers who were performing routine administrative functions. Funds for these workers were previously drawn from the Disaster Relief fund.

The current staffing level in Disaster Relief in 139, but it is unclear as to what the expected staff level will be throughout the year. The budget justification calls for 233 in fiscal year 1987, while a January 1987 FEMA regional council paper notes a target level of 211 (156 in the regions and 55 in headquarters).

This paper further discloses that the regional offices are staffed well below the target level of 156 with a current level of 85 or 54 percent of the target. Several regions are even staffed below this average such as the New York office with a current staff of six but a target of seventeen.

What accounts for the difference in staffing level targets for this year? What is the actual level expected to be? When will the targeted staffing level be reached?

Answer: There was some initial confusion within the Agency as to what level of staffing had been authorized and how the new positions would be distributed. Because the approximately 90 work-years involved more than 90 Disaster Assistance Employees spread less than full-time throughout a large number of functions, it took some time to develop a workload-based distribution of positions, develop and classify new position descriptions, re-do organization functional statements and begin recruitment of new permanent employees.

The current staffing level in Disaster Assistance Programs is approximately 162 and is changing daily as positions are filled. The permanent, full-time staffing level target for FY 1987 is 217. Since the FY 1988 authorized staffing is 217 we are hiring temporary employees to make up the additional 16 which bring us to the FY 1987 level of 233, but we would expect to have to terminate those employees in FY 1988.

We are actively recruiting in order to reach the 217 level of permanent employees during FY 1987 but have been disappointed, particularly in some of the Regional cities, with the lack of applicants. We will continue aggressive efforts to fill vacant positions.

Question: How can regions operating at well below their targeted staff levels effectively carry out their responsibilities?

Answer: During the FY 1987 transition year we are continuing to use some Disaster Assistance Employees to perform ongoing functions until new permanent employees are hired. We are also continuing our normal practice of using less busy Regions to support other Regions in disaster field operations. In this way, we have prevented any degradation in our ability to meet the needs of disaster-affected individuals and communities.

DISASTER RELIEF -- FEDERAL PAYMENT FOR UNINSURED PUBLIC PROPERTY

Question: The Disaster Relief Act of 1974 encourages state and local governments to protect themselves by obtaining insurance to supplement or replace Federal assistance. Presently, state and local governments are not required to be insured against initial property losses as a prerequisite to receiving Federal disaster relief. These losses could stem from flooding or other hazards such as hurricanes or earthquakes. FEMA only requires flood and/or hazard insurance on state and local government property after disaster relief has been received for an initial loss. This insures

protection for any future losses.

FEMA has explored the possibility of requiring state and local governments to maintain flood insurance as a prerequisite for receiving even initial disaster assistance. FEMA estimates an annual savings of about $7.6 million if flood insurance was required for initial losses. Savings may also be expected in requiring hazard insurance for initial losses.

Has FEMA studied the possibility of requiring state and local governments to maintain hazard insurance for initial losses? If so, what are the expected cost savings?

Answer: FEMA has, on a number of occasions, reviewed the possibility of requiring State and local governments, as well as eligible private non-profit organizations, to maintain other hazard insurance for initial losses. Page 13 of Senate Report 97-459, dated May 28, 1982, concerning eliminating the "first bite free" for flood insurance in Senate Bill S.2250, stated: "The Committee expects the Federal Emergency Management Agency to examine the issue of insurance protection with regard to other types of hazard such as wind, fire, and earthquake, and to study insurance requirements as a possible prerequisite for other types of assistance. The Committee will consider in the future any legislative proposals to extend this insurance requirement to other forms of insurance and types of assistance."

Based on our review and analysis of automated information contained in our disaster assistance files, if we were to require other hazard insurance for initial losses, expected annual program cost savings are estimated at $2.5 million.

Question: What is FEMA's position on requiring both flood and hazard insurance for public buildings as a condition to receiving initial Federal assistance?

Answer: FEMA has always maintained the position that State and local governments, as well as eligible private non-profit organizations, should, in practice, maintain insurance on insurable structures and encouraged them to do so. Also, FEMA disaster assistance regulations require that insurance recoveries should be deducted from the initial Federal grant. However, the insurance requirements contained in P.L. 93-234 (flood insurance) and P.L. 93-288 (other hazard insurance) are prospective in nature, requiring that the grantee obtain and maintain future insurance as a condition for receiving an initial grant.

With regard to insurance in force prior to a major disaster, FEMA has supported the view that a prudent eligible grantee should maintain appropriate flood and/or other hazard insurance on its insurable structures as is reasonably available, adequate, and necessary, and that the general public should not be expected to underwrite such risks in the event of a major disaster.

Existing legislation provides that States may elect to become self-insurers in order to meet prospective insurance requirements. Once approved by FEMA as a self insurer, the State is presumed to

have insurance in force prior to subsequent major disasters and such insurance would be deducted from any FEMA grant under the Disaster Relief Act. Currently, 13 States have been approved as self-insurers for flood insurance under the National Flood Insurance Program, and one State (Pennsylvania) has been approved as a self-insurer under the insurance provisions of the Disaster Relief Act.

Question: If supportive of such a requirement, what action is the agency taking to accomplish the change this fiscal year?

Answer: Proposed legislation introduced in both the House and Senate since 1982 has contained a provision which stipulates that "as a condition for assistance, any public facility and private non-profit facility which is ... otherwise eligible for assistance under section 402 of this Act, must be covered on the date of the flood damage by reasonable and adequate flood insurance." A similar provision has been included in the Disaster Relief Act Amendments of 1987 being introduced in the House during the first session of the 100th Congress.

FEMA legislative proposals addressing the Disaster Relief Act did not include a similar provision for other hazard insurance based on the earlier view that it would be difficult to evaluate deductibles (which, in the past, have been paid by FEMA) and determine what constituted reasonable coverage. However, this no longer appears to be a problem in that FEMA could elect to not pay for deductible amounts (which are essentially a form of self-insurance) and determine that 80% co-insurance coverage for insurable structures would be reasonable to the extent that such insurance is available at reasonable rates. Consequently, FEMA would support Congressional action to expand the insurance provisions of the disaster relief legislation being introduced this year to require that eligible grantees must also maintain other general hazard insurance, in addition to flood insurance, for initial losses.

Question: Does FEMA have the authority to impose such an insurance requirement, or is a legislative change needed?

Answer: FEMA General Counsel has reviewed the issue of FEMA changing its insurance requirements for both flood insurance and other hazard insurance by issuing regulatory changes and concluded that this can only be accomplished by legislation. This is based on the language in Section 202 of the Flood Disaster Protection Act, P.L. 93-234, and Section 314 of the Disaster Relief Act of 1974, P.L. 93-288, which mandate the purchase of flood and other hazard insurance on a prospective basis as a condition for receiving a grant.

1988 DISASTER FUND SHORTFALL

Question: General Becton, in your prepared statement you refer to the fact that the high level of disaster activity in the first quarter of fiscal year 1987 may deplete the Disaster Relief Fund this year. You also indicate that there may not be sufficient funds carried forward into 1988 to meet "average" year requirements and a supplemental appropriation may be required. What sort of

shortfall do you anticipate next year?

Answer: Based on obligations incurred from 1980 through 1986, and omitting the high and low years, the average annual obligation against the Disaster Relief Fund is $317 million. Recoveries result in a net obligation of about $250 million a year.

As of March 31, 1987, the balance in the Disaster Relief Fund was $128 million. Assuming that obligations and recoveries are about average for the rest of 1987, there will be no funds carried forward into 1988. Based on projected program savings of $20 million, recoveries of $50 million, and an initial budget request of $125 million, there may be a shortfall of about $55 million in 1988.

TRAINING AND FIRE PROGRAMS

Question: It has been alleged in the past that FEMA spends too much time on bureaucratic reorganization which should be spent on effective delivery of its program. Once again, you are planning to reorganize the training effort.

Please provide for the record a detailed justification for this reorganization, including projected costs and savings.

Answer: As I mentioned earlier, I have a task force hard at work developing recommendations on how best to accomplish my stated objectives. The results of this effort will be shared with the Congress.

Question: Several years ago, the U.S. Fire Administration was moved to Emmitsburg, Maryland. The justification was to co-locate the Fire Administration and the National Fire Academy in order to provide a better focus for the fire program in FEMA. I understand that you are currently planning to move the U.S. Fire Administration back to Washington.

What is the justification? What do you estimate to be the cost and savings?

Answer: My intention is to bring all of my senior policy people together in Washington, and to make the U.S. Fire Administration more accessible to many of the organizations with which and through which it must work to accomplish its mission. Cost estimates are still being developed and will be shared when they are available.

Question: Your budget indicates 75 workyears are assigned to the National Fire Academy for FY 1987 and requested for FY 1988.

How many of these people will be moved to Washington to support the new Office of Training? Will the majority of their efforts be to support the National Fire Academy?

Answer: The exact numbers will be a product of my task force's efforts and will be provided to the Congress after I have approved

the proposals, as developed or modified.

STUDENT TRAVEL STIPEND

Question: FEMA provides travel stipends to students attending their training courses. Last year the Senate asked FEMA to expeditiously conduct a study of techniques to reduce the cost of the stipend program. FEMA presented a list of eleven optional savings techniques with the "intention to evaluate the cost reducing techniques in relation to the applicable statutory formulae."

Could you explain the additional work that remains in evaluating these techniques? When do you expect to conclude your evaluation efforts?

Answer: In a follow-up report transmitted by Director Becton April 1, 1987, specific information was provided on the status of the evaluation. In summary, classes to be evaluated are being identified, the intended results of the evaluation are being reviewed, and action is being taken to notify the affected students of the study. We expect to conclude the evaluation of students and techniques by the end of this fiscal year at which time we will begin our analysis and development of recommendations. The entire project is scheduled for completion by the end of this calendar year.

Question: To what extent were the techniques studied in terms of their advantages and disadvantages? Were possible ramifications, expected cost savings, or possible implementation timeframes developed?

Answer: The evaluation is to include the advantages and disadvantages to the government, the student, and the student's sponsor as well as any cost savings. This will be considered in the analysis and development of recommendations. Once the study is complete, a timeframe for implementation will be developed. We expect to implement the most effective techniques at the beginning of FY 1988.

Question: Has any priority been assigned to the proposed techniques? Can FEMA provide such a ranking along with the basis of the ranking?

Answer: No ranking has been developed. We are studying all but one of the techniques. The most effective techniques are expected to be implemented at the beginning of FY 1988. One study was dropped because we stopped reimbursing State and local governments for mileage on their vehicles. Only owners/operators of private vehicles received travel stipends.

TRAINING AND FIRE PROGRAMS -- COST SHARING OF TRAVEL STIPEND

Question: Last year Congress rejected your elimination of travel stipends for students attending the National Fire Academy or the Emergency Management Institute. This year you are requesting a

three year phase-in of cost sharing by state and local governments of the travel stipend. Under resident program of the National Fire Academy the fiscal year 1987 current estimate of 1,724,000 includes 1,260,000 for stipends. The reduction of 822,000 which is for stipends is almost two-thirds. Have you consulted with state and local governments to determine if they can provide this support?

Answer: In FY 1986 and 1987, we also proposed to end the student travel stipend program. The State and local governments opposed this action. Discussions with State and locals about the FY 1988 proposals have shown that they continue to object to the stipend withdrawal. We believe, however, that our proposal to phase out the program over three years, rather than an abrupt elimination in one year, would lessen the impact on State and local governments and, thus, allow them time to adjust their budgets to cover the expenses of attendance associated with training their students.

NETC-WEST

Question: In 1985, a $2.7 million letter of credit was given to the State of Nevada for renovations at NETC-West. Last year, General Becton told Congressman Boland "Basically, while we see no NETC facility for the near future, we believe it is important to keep our options open."

Do you currently have any plans for the Carson City site? (According to the Agency there are no plans for FEMA's use of the Carson City site).

Answer: No, we have no plans.

Question: Has the letter of credit been terminated and the funds returned to the Treasury?

Answer: No, the letter of credit has not been terminated.

Question: If you have no plans for using the site, why has the letter of credit not been terminated and the funds returned to the Treasury?

Answer: We entered into an agreement with the State of Nevada in good faith. We were to confer a mutual benefit on each other and we each had mutual obligations. Both FEMA and Nevada had the best of intentions at the time the agreement was made. Subsequent events, largely beyond the control of both FEMA and the State of Nevada, made it impossible for us to carry out the agreement as originally planned. Although we could terminate the contract, I am informed that termination costs in such an event would make any savings achieved relatively small. In such circumstances, I feel we have an obligation to act in good faith toward the State. Whatever short-term gain FEMA might achieve by sharp practices in this situation would, in my judgment, be far outweighed by the damage that such a course would do to our reputation for fair dealing with the states with whom we have a wide range of contractual arrangements.

Question: General Becton, in a January 15, 1986 letter to Senator Laxalt, you stated that "If we were to spend the $2.7 million in fiscal year 1985 for this program, I believe we are potentially subjecting the Administration, the Nevada delegation, and this Agency to significant criticism."

If this is the case, why shouldn't the remaining funds be rescinded?

Answer: Subsequent to January 15, 1986, FEMA explored other Federal uses for the Stewart Indian School. During this period, the State of Nevada cooperated with FEMA by delaying its plans as we looked at other options for use of the site. As I said before, we were acting in good faith in our dealings with the State.

NATIONAL EMERGENCY TRAINING CENTER - WEST

You are requesting $15,576,000 for your training and fire programs next year, a reduction of $4,762,000 in your current level. A few years ago, FEMA decided to establish a western training center, called NETC-West, on the site of the former Stewart Indian School at Carson City. In fiscal year 1985, Congress appropriated $3.2 million for this purpose. For a number of reasons, including the cost of the facility, FEMA subsequently decided not to establish the center.

No funds have been requested for NETC-West in 1988. No funds were requested or provided for NETC-West in 1987. In 1986 FEMA obligated $266,000 for NETC-West. How was the $266,000 obligated?

Answer: Funds expended for the Stewart Indian School (previously NETC-West) in Carson City, Nevada, provided for site maintenance and security activities.

EARTHQUAKE

Question. You are requesting a total of $8,737,000 for comprehensive emergency preparedness planning in fiscal year 1988, a reduction of $758,000 below current funding.

The majority of these funds -- $4,475,000 in the current fiscal year and $4,030,000 in fiscal year 1988 -- will be spent on earthquake hazard reduction. According to your justifications you are funding the Children's Television Workshop in 1987 and 1988 to develop a public awareness program targeted at multi-age audiences to help them prepare for actual hazards, including earthquakes.

How much will the Workshop receive this year and next?

Answer. In FY 1987, FEMA has budgeted $92,500 for Children's Television Workshop (CTW) and proposes to budget $50,000 in FY 1988.

Question. Why was the Children's Workshop chosen to develop a public awareness program for audiences of all ages?

Answer. The audience for the Children's Television Workshop material is children. Specifically, children from pre-school age to about 12 years old. One of the approaches for reaching an audience of children is, obviously, through parents, teachers, and other care givers and the materials being developed by the Workshop will apply this approach. Children's Television Workshop was chosen to undertake this project because of their expertise in designing materials for children, and because of the recognition, support, and trust children have for the CTW characters such as "Big Bird" which would be utilized in the materials developed for FEMA. In addition, CTW had developed for FEMA a very successful project on fire safety for children that is still being used nationwide.

Question. Since the public awareness program is to help Americans prepare for natural hazards generally, not just earthquakes, why is this project being supported by earthquake funds?

Answer. The public awareness materials being developed by CTW for children will be hazard-specific. Currently in production are kits specifically dealing with earthquakes, hurricanes, and tornadoes. The training package that will accompany these kits will apply to all of these hazards so the trainers, teachers, care givers, etc., will be able to work with the hazard specific materials that affect their particular locale. This trainer package will also include materials applicable to any natural hazard or emergency situation. Since there is earthquake-specific material being developed, the use of earthquake funds is appropriate. Furthermore, a small amount of Hurricane funds are also being applied to support this project.

Question. Why can't the project be completed in one year?

Answer. One of the reasons CTW has been so successful in reaching their audience of children is that they have an extensive process for researching and testing materials on sample audiences before these materials are finalized. This process of researching the current level of understanding of children, developing the materials, testing the materials, and then revising the materials based on the pilot testing usually takes about 2 years. This investment of time results in products that we know children will understand and will use.

Question. Can you tell us what this money will buy?

Answer. Under the current grant with CTW they will be developing FEMA hazard-specific kits for earthquakes, hurricanes, and tornadoes; a trainer package for use with all the kits to include a training video; a specified number of training sessions by CTW personnel in the use of the kits and auxilliary materials; a strategy for dissemination and distribution of the materials nationwide; and a series of articles in the CTW publications on natural hazards.

SUPERFUND

Question: You have received $5 million from the Superfund

program for the purpose of awarding emergency hazardous materials training grants and are expecting to receive another $5 million next year. Can you tell us how these funds are being used?

Answer: FEMA has not yet received the $5 million authorized for training in hazardous chemicals emergency response under Section 305 (a) of Title III of Superfund Amendments Reauthorization Act (SARA). The mechanism for obtaining these funds has not been determined; i.e., whether from the Superfund interagency budget or through a supplemental appropriation.

When the funds are received, FEMA plans to distribute approximately 90% of the funds to State governments for field training in response to the need for additional field training as cited by: Office of Technology Assessment 1986 Report to Congress, FEMA/DOT Report to Congress 1986, and the National Response Team Conference Report 1985. The remaining 10% will be used for national course development materials and program administration. States and local government sub-grantees that sponsor courses of the National Fire Academy (NFA) and the Emergency Management Institute (EMI), will be eligible for student per diem and course conduct cost reimbursement. States are required, in the Act, to provide a 20% non-Federal matching share. FEMA is planning to allow in-kind matching in FY 1987 and 1988 due to the late receipt of funds.

Question. Provide for the record a listing of all emergency hazardous materials training grants awarded thus far with the cost of each grant and a paragraph describing the activities funded through the grant.

If no grants have been awarded to date, provide your grant award schedule for the remainder of the current fiscal year and for fiscal year 1988.

Answer. Upon receipt of funds, FEMA intends to allow at least a minimum 30-day response period for States to submit their proposed training programs. FEMA prefers to give the States a 60-day submission period. Following a 15-30 day review period, FEMA expects to approve training plans and spending levels and to disburse funds through regional offices. The timing of fund availability will affect the eligible cost items and the spending patterns developed by the States. Therefore, a firm start-up date is critical to FEMA's program management and subsequent audit activities. When the funding issue is clarified, FEMA intends to start the FY 1988 notification-submission-review activity in concert with its already legislatively approved comprehensive cooperation agreement process which begins in May 1987 for FY 1988.

FINANCIAL PROBLEMS

Question: At the beginning of this fiscal year, a senior FEMA official identified a number of financial problems in the Office of the Comptroller. The problems included the following:

-- Duplicate, independent, overlapping accounting systems serving the same purpose and using similar data are in use

in various program offices....(The Comptroller's Office is responsible for operating an Agency-wide accounting system, but the Emergency Operations Office has their own accounting system.)

-- The financial management systems and all transactions are not clearly documented.

-- The internal control system and techniques established do not provide reasonable assurance that assets are safeguarded against loss, waste and unauthorized use.

-- Cash receipts are not promptly recorded in the proper accounting records.

-- FEMA does not arrange for disposition of government-owned property, upon termination of a grant.

-- Key duties and responsibilities such as initiating, performing and reviewing transactions are not assigned to different individuals in the regions. As a result, individuals are in a position to both perpetuate and conceal errors or irregularities.

A senior FEMA official stated that the agency will not be able to start corrective action on all of these problems this fiscal year. In fact, the start of corrective action on some problems may be several years away.

For each of the above problems, would you summarize what corrective action is planned and how much it will cost?

Answer: Duplicate Accounting Systems. FEMA has only one official accounting and financial management system which is a centralized, automated system providing detailed financial information, activity and balances on all FEMA programs with the exception on the National Insurance Development Fund and the National Flood Insurance Fund which are accounted for by a contractor. There are several duplicate, independent and overlapping systems used by various directorates to track the status of funds but are not part of the Financial Accounting and Reporting System (FARS). The implementation of DAMAGES and various enhancements to the allocation process have eliminated the need for duplicate systems in the disaster assistance area. In addition, systems enhancements to FARS have provided on-line information to various program offices at Headquarters, eliminating the need for duplicate systems for an office. No corrective action is planned and no expenditures (costs) are required for this item.

Accounting System Documentation. Corrective actions to correct weaknesses in this area are currently included in the five-year budget submitted to OMB and resources have been set aside to begin work in FY 1988. Obligation authority is being sought for $500,000 over a four year period to fix the problems.

Internal Control System/Property Accountability. The citation on internal controls was introductory language to the issue of

property accountability. The essence of the comment made by the senior FEMA official was that the agency did not have, as part of its accounting system, an adequate system of records and related procedures to record the government's investment in property. Although the agency does have extensive records regarding the property it owns, there is no uniform, agency-wide automated system to record and report on investments and property. Meetings have been held with staff offices and a plan of action which identifies resources and milestones has been established to correct this deficiency. It is anticipated that a property management system fully integrated with the agency general ledger will be implemented in FY 1988. For this effort, FEMA estimates a cost of $15,000 in FY 1987, $25,000 in FY 1988 and $6,000 in FY 1989.

Recording Cash Receipts. Cash receipts are not being recorded in the accounting records promptly in some regions. FEMA is ready to transfer direct deposit authority to each region and the Special Facility to resolve this problem. The Department of Treasury and the regions have been notified of this transfer of function and visits to each region to help implement procedures are planned. The problem should be corrected by the end of FY 1987. No costs will be incurred by the agency in FY 1987 to implement the direct deposit system.

Disposition of Government-Owned Property Upon Termination of a Grant. This will be corrected when the property accountability system is fully implemented. For this effort, FEMA estimates a cost of $10,000.

Key Duties and Responsibilities. As a result of the regional realignment, administrative functions of the Regional Management and Administration Division (now abolished) have been moved to a staff function in the Office of the Regional Director. Regions will be briefed on technical standards governing separation of duties and meetings are planned for each region to ensure separation of duties are carefully considered and maintained as organizational arrangements are solidified. For this effort, no expenditures are required for FY 1987 and FY 1988.

Question: When is corrective action scheduled to get underway for each problem? If not this year, why?

Answer:

Duplicate Accounting Systems. No corrective action scheduled. Refer to previous question and response on this issue.

Accounting System Documentation. Corrective action is scheduled for FY 1988 through FY 1992. Implementation will not occur in FY 1987 because the agency is concentrating on the implementation of the standard general ledger and a property management system and improving the accounts receivable system.

Internal Control System/Property Accountability. Corrective action began in FY 1987.

Recording Cash Receipts. Corrective action began in FY 1987.

Disposition of Government-Owned Property Upon Termination of a Grant. Corrective action is scheduled when the property management system is completed.

Key Duties and Responsibilities. Commenced implementation of corrective action in FY 1987.

Question: What priorities have you assigned to these problems and what was your basis?

Answer: The overall priority ranking for these problems is in the medium range, except property management and separation of duties. These two problems are assigned a high priority rank. The basis for the ranking was the evaluation of the system of internal accounting and administrative controls for the fiscal year ending September 30, 1986.

CIVIL DEFENSE INITIATIVE

Question: Mr. Becton, on May 8, 1986, I wrote you concerning FEMA documents I obtained which showed that FEMA was proposing to spend $1.5 billion for a civil defense plan that would shelter State and local officials while encouraging the rest of the population to rely on self-help. You wrote back on May 20, 1986, that you couldn't respond to my questions until the beginning of this year. On January 22 of this year, in a meeting in my office, I again asked you when I was going to get a response to my letter, which was sent to you eight months ago. You said you would get me a response right away. Well, two months have passed since that meeting. When am I going to get an answer to my letter?

Answer: FEMA was unable to respond substantively to your letter until virtually the time of the March 20, 1987, hearing by the Senate Appropriations Subcommittee on the FY 1988 request. This resulted from the fact that the new National Security Decision Directive (NSDD 259) on civil defense was approved on February 4, 1987, while the 1988 Budget Amendment to implement the NSDD was tentatively approved on March 18, with official transmittal on March 20.

Two days before the hearing, an advance copy of the Budget Amendment was provided to the Subcommittee, together with the final (April 16, 1986) version of FEMA's Civil Defense Review paper. The review paper had provided the basis for interagency review, which started in May 1986. The outcome of that review was the policy set forth in NSDD 259, and the FY 1988 request contained in the advance copy of the Budget Amendment delivered on March 18.

FEMA's April 1986 review paper included an illustrative program totalling $1.5 billion over a period of five years. However, NSDD 259 does not provide for attaining specific objectives by any set time (as distinguished from NSDD 26 of early 1982, which did so provide). NSDD 259 does provide for developing, in peacetime, an in-being base or infrastructure which would be capable of rapid expansion by "surge" actions should a period of increased international tension occur.

The approach embodied in NSDD 259 and the revised civil defense program is realistic. It recognizes the fact of the Federal deficit, and the fact that the Congress has not indicated that it would support the development of comprehensive, in-being civil defense capabilities in peacetime. The program must therefore develop a base from which shortfalls could be made good, to the maximum extent that time allowed, by surge actions in a period of rising tension.

How rapidly progress is made will be a function of such factors as the Federal deficit and the year-by-year budget process. In short, FEMA will "take it a year at a time," and the $1.5 billion illustrative program in FEMA's April 1986 review paper has been overtaken by more recent decisions. Thus the amended 1988 request totals approximately $155 million. The moderate level of this request is best seen graphically (see Figure 1, attached) showing the history of civil defense appropriations in constant 1988 dollars.

This shows that the 1988 request is approximately three-quarters of the actual 1985 appropriation.

FEMA believes that it is of great importance that the 1988 request be approved, to begin progress towards the objectives established by NSDD 259. Based on questions posed during the March 20, 1987, hearing, it is clear that the Subcommittee has concerns about several areas which could not be fully discussed at the hearing due to lack of time; more detail on those areas is provided below.

Generally, the program contemplated by NSDD 259 and the 1988 request aims at developing minimum-essential capabilities in being at minimum cost, plus the surge base or infrastructure noted above. The minimum-cost nature of the request is also best seen graphically. Figure 2 (attached) displays comparative per-capita expenditures for a number of countries. If the 1988 request for $155 million is approved, the U.S. investment will rise to some 63 cents (vs. the 57 cents shown for 1987) -- still much less than that of the other countries, except France.

The minimum-cost approach necessarily limits the options available. Very modest budget levels will not support large-scale fallout shelter programs such as those of the 1960's, much less blast-shelter programs as conducted by a number of European countries. Nor will they support large-scale evacuation-oriented programs such as proposed in 1982, with large numbers of radiological instruments having been procured in peacetime, and related in-being systems.

Nevertheless, the U.S. has significant existing assets which could save many millions in the event that deterrence should ever fail and the U.S. suffer nuclear attack. Such an attack might be limited to missile complexes, SAC bases, and ballistic missile submarine ports, or it could include urban/industrial areas as well. One major asset is the inventory of over 250 million fallout-protected spaces identified in existing larger buildings by large investments since 1962 (totalling some $690 million in 1988 dollars). Another asset is the fallout protection afforded for residents by millions of home basements -- protection which can, moreover, be increased by crisis-period actions.

The key to minimizing the population's exposure to radiation, thus minimizing radiation fatalities and sickness, is for people to make the best use possible of existing protection. To do this, however, the people must have some understanding of the nature of radiation and of means of protection against it. Therefore, it is essential to provide such information to the people.

A major thrust of the revised program, accordingly, is to provide information for citizens on practical things they can do to avoid injury or death in emergencies of all types. Action by an informed citizenry is the bedrock foundation of any protection program, and this applies in the case of nuclear attack as it does to tornadoes, hurricanes, and other peacetime emergencies. This is true in countries with elaborate and expensive programs, which all put great stress on training and information for their people.

Informed citizen action assumes even greater importance in a very modest program such as FEMA proposes.

More concretely, information will be provided on family protection -- what people can do to increase their odds for survival if they are threatened by tornadoes, hurricanes, or attack. In the latter case, people need to know about such things as the fallout effects of nuclear weapons, how shelter areas in existing buildings can provide fallout protection, how to improve existing protection where necessary, and what to take to a shelter.

Most people do not give much thought to such matters in normal times, but if international tensions rise, so does public demand for such information. Accordingly, information will be provided in peacetime, for those who desire it, also in time of escalating tension, should this occur -- when experience indicates that many people will want such information.

The importance of providing information to the people is also reflected in the revised program's emphasis on improving State and local crisis management capabilities. This means improving the survivability of our constitutional fabric of Government, including the ability to communicate among governments and to the public in any emergency. The purpose of this emphasis is to enable governments to remain in operation to support and assist their people -- for example, by broadcasting lifesaving advice and information to them on how to make best use of the large amount of fallout protection in existing homes and larger buildings, on when they can leave shelter as fallout intensities decline, and on where food, water, and other essentials are available. Crisis management improvements will also allow emergency responders to direct lifesaving operations such as rescue, debris removal, and firefighting, and to communicate to higher levels to request help.

The program elements involved in strengthening State and local crisis management include warning systems; protected radio stations so governments can broadcast advice to their people; plans to assure the continuity of State and local governments to lead lifesaving operations; a minimum-essential radiological detection and analysis capability; and emergency operating centers (EOC's). The EOC's are coordination centers, with the necessary communications, from which civilian governments can direct operations in emergencies of all types. The use of EOC's by local and State governments is routine in tornadoes, hurricanes, and hazardous materials spills -- as is the use of Emergency Broadcast System stations to get advice to the people.

Concern has been expressed during this March 20 hearing that developing a crisis-management network of EOC's, with communications among EOC's and to the public, would amount to providing for the survival of public officals but not of the population. The purpose of the network is the opposite of this.

The staff of an EOC may total from 20 to over 100 people, depending on the size of the jurisdiction served. Out of that number, the elected officials would include the mayor, in a city's EOC, and one or several county commissioners in a county EOC. The

remaining 95+% of the staff would be such individuals as police, fire service and public health professionals, communications technicians, and a radiological analyst trained to assess the radiation hazard and prepare advice to broadcast to the people on how to avoid radiation sickness or death.

The purpose of the EOC's is to assist the people, to the maximum extent possible, given a very modest civil defense program. The fact is that hardly any of the American people know much about radiation. Should deterrence ever fail, they will want to hear a voice on the radio telling them what they should do. If people hear a voice saying, for example, that in Green County they should stay in basement shelter areas for two more days, while fallout intensities decline, they are going to say, "Thank Heaven. There's someone out there who can tell me what the situation is and what I need to do." Moreover, such advice could save many lives, and is a critically-needed element of any program, and especially of a very modest-cost program.

Those who saw the 1983 television film, "The Day After," may remember that the people heard nothing on the radio. It is to improve that situation that the revised program includes very modest funding for the EOC program and for the Emergency Broadcast System.

Concern has also been expressed during the March 20 hearing that a U.S. EOC program would equate to the Soviet program to protect key leaders. The Soviets have over 1,500 "command posts" for 175,000 key leaders, down to the level of city government and major industrial plants as well. These, however, are blast-hardened centers -- not fallout-protected coordination centers such as FEMA proposes, with EOC's typically put in the basement of a courthouse or similiar building. If a nuclear weapon detonates within several miles of such a basement EOC in the U.S., that EOC will be put out of action. But where the hazard is fallout alone, the EOC will be able to continue operations, providing lifesaving information and other support for the people. The DoD publication, "Soviet Military Power 1987," states "...the U.S. passive defense effort is far smaller and more limited. It is in no way comparable to the comprehensive Soviet program."

It should also be noted that EOC's are found not only in the USSR, but in Sweden, Norway, Great Britain, and all countries with civil defense programs. The purpose is the same everywhere -- to conduct lifesaving operations to support the population.

In summary, the revised U.S. civil defense program will develop a peacetime base for "surge" actions in time of crisis to improve capabilities, while stressing preparations which could save millions in the event of a failure of deterrence. This includes major focus on providing information to the public on actions to improve their chances to avoid death or injury in emergencies of all types, including attack. FEMA believes that this minimum-cost, realistic approach is in line with the observations of the Chairman at the July 1984 hearings before a Subcommittee of the Joint Economic Committee, on the consequences of nuclear war, that it is the "...responsibility of the Federal Government to protect its people. ...[W]e have the obligation to do what we can."

Figure 1

HISTORY OF CIVIL DEFENSE APPROPRIATIONS

IN CONSTANT 1988 DOLLARS

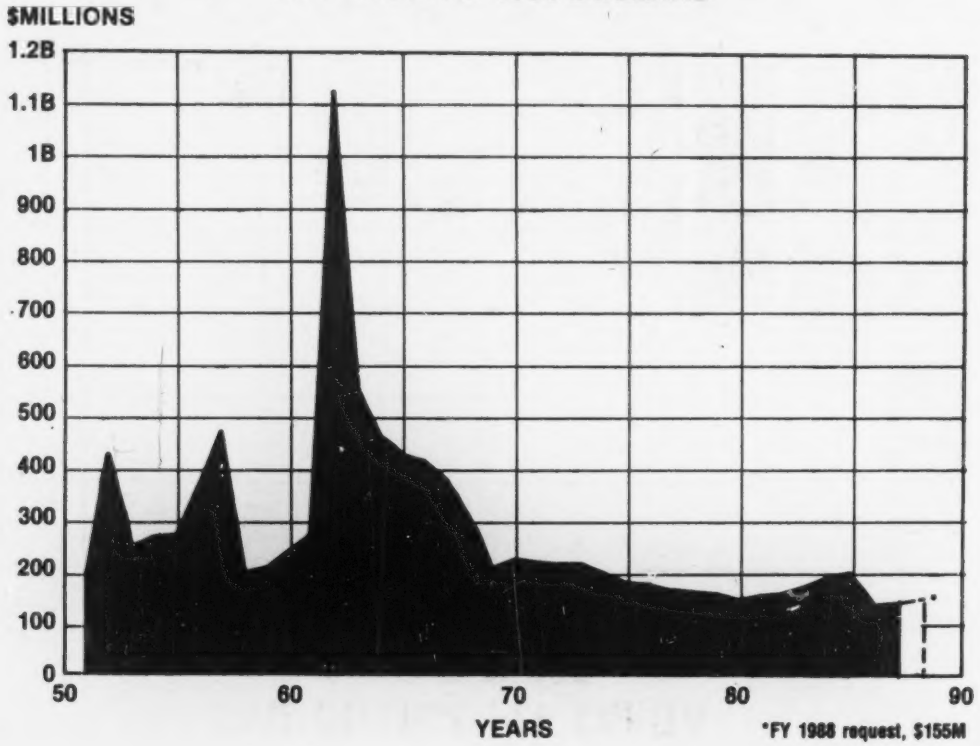
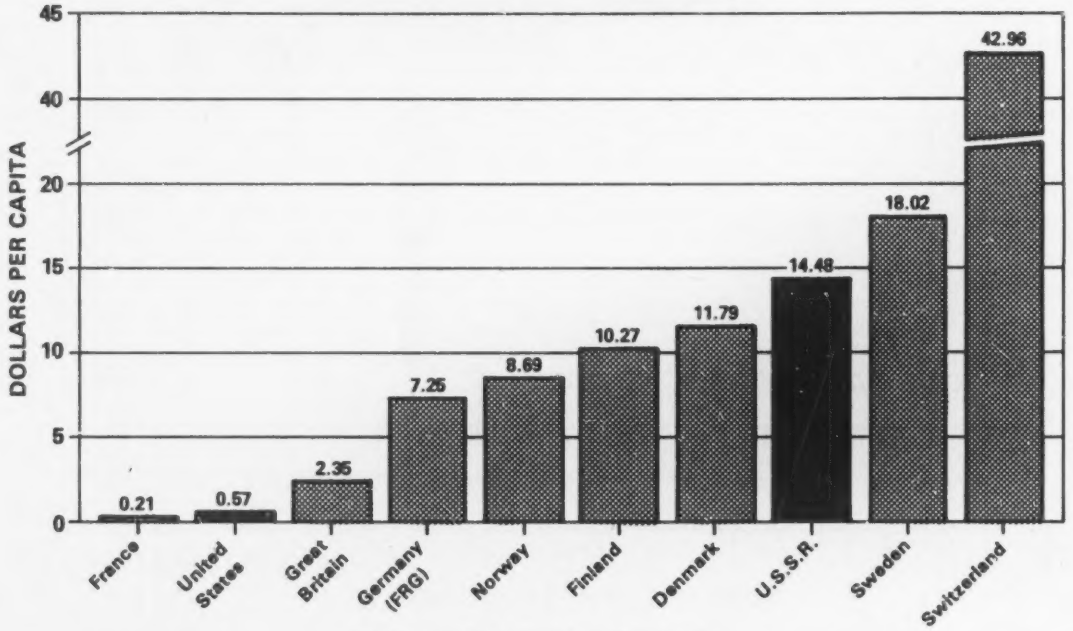


Figure 2

CIVIL DEFENSE PER CAPITA EXPENDITURES

(RECENT ANNUAL IN 1987 DOLLARS*)



*Subject to Exchange Rate Fluctuation.

CIVIL DEFENSE -- TELECOMMUNICATIONS AND WARNING

Question: Your telecommunications and warning request under the civil defense initiative is for $28,321,000 with $8,108,000 proposed in your budget amendment for high frequency radio equipment procurement.

Currently, the disaster response and civil defense systems have about 8 separate communications systems and an equal number of crisis control systems in operation. Why can't you reduce the number of systems?

Answer: We are doing just that. If you examine our current Telecommunications and Warning budget profile on page CD-96, you will see that the FEMA National Voice System (FNAVS) and the FEMA National Teletype System (FNATS) have been removed as line items. These two national systems have been integrated into the FEMA Switched Network (FSN). This Network is a voice and data system designed to provide the fixed communications backbone of the FEMA National Emergency Management System. We also have taken administrative steps to cancel the Decision Information Distribution System (DIDS) as a FEMA program. Staff actions to date have culminated in the identification of a qualified candidate, the United States Air Force (USAF), to receive the DIDS assets from FEMA. Turnover of the DIDS site and facilities to the USAF will be completed in FY 1987.

The Telecommunications and Warning FY 1988 budget request shows a total of eight program line items. Three are national communications systems -- the National Warning System, the FEMA Switched Network, and the FEMA National Radio System. One is a local Washington, D.C. system -- the Washington Area Warning System. DIDS is listed in this budget request to protect our investment in case we are unable to complete the transfer of the DIDS to the USAF in FY 1987. Three are not nationwide communications systems but rather are general communications services and support programs -- Information Systems Support Services, United States Army Civil Preparedness Support Detachment, and the Department of Defense Reimbursable Support.

Regarding the other eight comparable systems which are mentioned in your question as crisis control systems and which also are listed on page A-2 of the Civil Defense budget request, you will notice that these line elements are specifically for State and local programs and support. FEMA provides technical and operational guidance to State and local offices of emergency management to ensure that the State and local telecommunications systems are compatible with the Federal telecommunications systems, thereby increasing the probability of Federal, State, and local interoperability in an emergency or disaster environment. These systems should not be confused with FEMA's own Telecommunications and Warning systems, which are national in scope and mission.

GSA INTERFACE

Question: General Becton, as you probably know, the General

Services Administration is currently spending about $26.7 million on an Electronic Services program that provides telecommunications support for FEMA in the emergency and major disaster programs.

Please tell us how you interact with the GSA in this area.

Answer: As I'm sure you know, we do indeed depend greatly upon the GSA Electronic Services Program to support and supplement a FEMA peacetime, natural, or manmade emergency or disaster. When an event is declared a Federal disaster by the President, the Director of FEMA appoints a Senior FEMA Official (SFO) to head the Federal Response Center (FRC) at the site of the disaster. FEMA has appropriate staff, both at the headquarters and the regions, who are identified as members of the Emergency Support Team (EST) and the Emergency Response Team (ERT). The EST is located at the FEMA Headquarters, and the ERT is co-located at the scene with other Federal and State response team representatives. The SFO and ERT requires selected telecommunications support functions and services to accomplish its mission. The ERT communications officer contacts the GSA Federal Emergency Communications Coordinator in the Federal Region where the disaster or emergency has occurred. The GSA official acts to ensure that all required telecommunications services are provided in support of the Federal disaster recovery effort, which are not available from FEMA's own resources for the remainder of the emergency or disaster, and he advises the SFO on all telecommunications matters.

These procedures are formally established in the National Communications System (NCS) National Plan for Communications Support in Emergencies and Major Disasters, approved and adopted by the National Security Council in July 1983. This document serves as a guideline for the utilization of national telecommunications assets and resources in support of the provisions of the Disaster Relief Act of 1974 during Presidentially-declared Emergencies and Major Disasters or in other Extraordinary Situations. The plan is under review, and a revision is expected in the near future.

Support rendered to FEMA by the GSA in Presidentially-declared disasters has been excellent.

CIVIL DEFENSE -- SMALLER JURISDICTIONS

Question: On page CD-12 of your justification you state 2,735 local jurisdictions received emergency management assistance (EMA) funds through 1986. The justification narrative then indicates that "achieving a 100% national population coverage will require EMA participation by 5,700 jurisdictions."

Your EMA budget will be virtually level from 1986 through 1988. How can you expect to virtually double participation in the EMA program on a level budget?

Answer: FEMA is currently reviewing the standards for EMA coverage in light of National Security Decision Directive 259 (NSDD 259). It is possible that the 5,700 jurisdictions determined by the States as providing 100% population coverage may be changed

in the future to reflect a different mix of jurisdictions and a more specified funding level for jurisdictions based on population and/or other factors.

We do not expect to increase population coverage with a static budget. However, the long range goal does not change due to yearly budget limitations.

Question: Have you arrived at a population threshold for the effective utilization of EMA funds? For example, can smaller counties with populations of 50,000 or less use EMA funds in a cost effective and productive manner?

Answer: FEMA has not yet established a threshold based on population. We have looked at the EMA program in light of the "base" and "surge" provisions of NSDD 259 and have proposed that the 190 cities and counties above 50,000 not currently in the EMA program be targeted for inclusion as a first priority if additional funds are made available. It is not our intention to drop any existing participants out of the program based on population.

Starting in FY 1987, EMA funds were tied to being able to accomplish a minimum level of performance. Specifically, when we report to the Congress that 2,700 jurisdictions "participate in EMA" that now means those jurisdictions, at a minimum, can (1) plan their response to all emergencies, (2) exercise their response plans to determine the plan's validity and shortcomings, and (3) report their state of readiness to the next higher authority.

Our policy on effective utilization of funds is based on being able to perform the above three activities, not on a population threshold.

CIVIL DEFENSE -- RADIOLOGICAL DEFENSE

Question: Apparently your budget amendment request includes $3,920,000 for initiating the capability to produce simple, reliable, inexpensive radiological defense instruments.

How would these instruments be used and how would the capability to produce them be sustained over the years?

Answer: These instruments would be used in the event of nuclear attack by emergency services and public safety personnel who would have to operate in radiation fields. They would also be used by citizens either in fallout shelters or in citizen efforts to find better protected or upgradable locations. They would also be useful in the event of a large scale nuclear accident such as Chernobyl.

Strategies for developing and maintaining this production capability must be studied and optimized in terms of cost and reliability. Likewise, a strategy for mobilization production must be determined. An objective is to meet existing shortfalls by an ongoing limited production schedule in peacetime.

Question: Can you explain how this capability would complement dosimeter production activities at the William Langer Jewel Bearing Plant?

Answer: The William Langer Jewel Bearing Plant is engaged in pilot production, an essential part of the research and development process. This plant will complement the private sector production capabilities by monitoring the quality of the limited production and providing for improvements in design to enhance performance and/or reduce mass production costs. Thus, the role of the plant would be limited to research and development and quality assurance.

CIVIL DEFENSE -- INFORMATION SYSTEMS

Question: I understand that FEMA has formed a committee to address the issue of improving your information systems and that the concerns being addressed by the committee are:

(1) The lack of centralized control over policy generally and the purchase and installation of equipment in particular
(2) The fragmentation and incompatibility of information systems due to decentralization
(3) Insufficient training
(4) Duplication of effort

Is this correct?

Answer: The Information Systems Planning Committee (ISPC) was established by FEMA Instruction 1610.13 of April 15, 1986. It is a user-oriented forum designed to develop priorities and consolidate information systems requirements for effective and efficient satisfaction of the FEMA mission. The four concerns noted were among those addressed by the committee during meetings over the course of the last 6 months.

Question: What is the current status of the Committee's work?

Answer: To date, the Committee's most significant activities have focused on a general review of FEMA information systems activities with the goal of recommending changes to the policy development and strategic planning processes currently employed. Activity related to specific concerns has proceeded as follows:

(1) Centralized control over policy was recognized as a potential area for improvement. Although policy development responsibility has been successfully accomplished by the Office of Information Resources Management (IRM), there is evidence that the organizational placement of that Office may inhibit the successful application of information systems policy across all FEMA program areas.

(2) Exploration into concerns that FEMA information systems efforts were hampered by incompatibility and fragmentation revealed this to be a largely misplaced, though widely held, perception, and not reflective of Agency needs. Although greater compatibility might provide some benefit, the connectivity of FEMA's new telecommunications networks affords all the compatability required among

our genuinely disparate program needs.

(3) Insufficient training, particularly in the area of end user computing, was recognized as a shortcoming and efforts to overcome it were suggested and discussed.

(4) As indicated in (2) above, the concern of duplication of effort was largely perceptual rather than factual. The implementation of the Information Systems Planning Program (ISPP), now in its fourth year, served to significantly reduce redundancy in systems development efforts through careful review of requirements and consolidation of efforts. The ISPC's continuing oversight will serve to further minimize fragmentation, redundancy, and incompatibility.

Question: What corrective action does FEMA plan to take to deal with each of the above problems?

Answer: In addition to continued oversight by the Information Systems Planning Committee, the following actions are being taken to strengthen the information systems policy area:

(1) The Assistant Chief of Staff for Administration will be designated Senior Official for IRM.

(2) An ADP/Telecommunications policy function has been established within the Office of the Assistant Chief of Staff for Administration, providing greater visibility for information systems policy development and ensuring an appropriate agencywide perspective.

Shortfalls in staff and budget resources within the Offices of Personnel and IRM are being offset by the following initiatives:

(1) End user sponsorship of computer training activities, including in-house seminars and contract services.

(2) Inclusion of computer training in the agencywide assessment of needs being conducted prior to the establishment of the FEMA Office of Training.

Question: Has a plan, including a timetable for problem resolution, been developed? If so, we'd like a copy of the plan and if not, when will you have such a plan?

Answer: Transfer of Senior Official duties to the Assistant Chief of Staff will be accomplished prior to May 1, 1987. The ADP/Telecommunications policy function in the office of the Assistant Chief of Staff was established by the Director's memorandum of February 2, 1987. Staff resources will be assigned to that function prior to May 1, 1987. The agency assessment of training needs, including those for computer activities, will be completed during FY 1987. Meetings of the ISPC will continue to provide oversight for information systems efforts and a forum for timely discussion of issues. Although the information systems policy and planning activities are being strengthened, corrective actions in response to the concerns of the questions presented have already been undertaken and the need for development of specific plans in those areas no longer exists.

Questions Submitted by Senator Mikulski

Question: As the Director of FEMA, have you familiarized yourself with the Federal Fire Prevention and Control Act of 1974 (PL 93-498), Reorganization Plan No. 3 of 1978 and its legislative history, and Executive Orders 12127 and 12148 as they relate to the organizational authorities, functions and missions of the United States Fire Administration (USFA) and the National Fire Academy (NFA)?

Answer: I am familiar with these authorities, but I do not pretend to be an expert on any one of them.

Question: Are you aware that the aforementioned public law, reorganization plan (and its legislative history) and executive orders specifically detailed the will of Congress with regard to the structure of USFA/NFA within FEMA?

Answer: I understand that the Congress was consulted during the drafting of the reorganization plan. The public law was drafted considerably in advance of the formation of FEMA.

Question: Explain to the committee how your February 2, 1987 memorandum concerning the proposed reorganization reflects the organizational structure and intent of Congress as it relates to the placement of USFA and NFA within FEMA.

Should you become aware of actions by your predecessor Louis Giuffrida, with regard to organizational changes implemented during his administration, which were contrary to the intent of Congress, would you take measures to correct that situation by returning USFA/NFA to their proper alignment?

Answer: While I cannot speak for the actions of my precursor, I am aware that the intent of Congress is expressed in many different forms, and not always consistently. I am always open to discussion with the Congress concerning any facet of the operations of FEMA.

Question: Are you aware that fire program funds have been, and are currently used, in support of non-fire activities within FEMA at NETC, e.g., overhead positions supporting civil defense initiatives, etc.? Provide this committee with a detailed itemization of such expenditures, i.e., salary and expense (including travel), program funds, capital expenditures, etc., by budget category and item of expense.

Answer: As we understand the question, you are referring to the support or overhead activities of the National Emergency Training Center (NETC). The program funds for administrative and educational program support, executive direction, and site operations of the National Emergency Training Center, known as NETC Site Administration in the budget, are currently provided from four different areas -- Training and Education (Civil Defense), Emergency Management Institute (Training and Fire Programs), National Fire Academy,

and United States Fire Administration. Workyears and Salaries and Expenses funds are provided from the Training and Education and National Fire Academy budget areas. The estimated 1987 expenditures from each of the areas is as follows:

	Workyears	EMPA	S&E
Training and Education	17	$1,700,000	$409,000
Emergency Management Institute		500,000	...
National Fire Academy	37	2,700,000	1,730,000
U. S. Fire Administration		200,000	...

Prior to 1981, the National Fire Academy (NFA) was the sole occupant of the Emmitsburg, Maryland facility. In 1981, the Emergency Management Institute (EMI) was relocated from government-leased space in Battle Creek, Michigan, to Emmitsburg. Rather than create a separate administrative and educational program support structure for each institution, a common administrative and educational program support structure was created to support all the occupants on the campus. Resources were supplied from EMI to supplement the resources already provided by the Academy. Common support includes the learning resource center, media shop, facility maintenance and operations, admissions and registration, student housing and transportation, food service, procurement, budget and fiscal operations, program and policy analysis, ADP support, personnel management, academic program coordination and long-term evaluation, academic research, property management, and executive direction.

As stated previously, funding and workyears are provided from four different areas. For expenditures which benefit a particular program, the expenditure is charged to that program area. If the expenditure is for a common service, the expenditure is multifunded based on the funding provided for each program area.

Workyears are distributed in each office so that some employees are charged to each program area. Since these are common services, individuals support the Civil Defense, non-Civil Defense, and fire programs, and are able to shift work as the need dictates. Common support is provided to the two educational institutions as well as the U.S. Fire Administration.

Question: Do you intend to continue to use fire program funds for non-fire activities under your proposed organizational structure? If not, how do you intend to correct the current situation?

Answer: We discussed our allocation of funds and workyears in response to the previous question. We intend to continue to operate a common administrative and educational program support structure as we believe it the most efficient and economical for providing these services. The consolidated administrative structure is in line with the Reform 88 initiative of the current administration.

Questions Submitted by Senator Garn

RADIOLOGICAL EMERGENCY PREPAREDNESS

Question. Yesterday we received a report prepared at our request on the feasibility of levying fees for FEMA assistance at commercial nuclear power plants. Please outline your findings.

Answer. The major findings/recommendations of the study are as follows:

° The level of funding recommended for FEMA's Radiological Emergency Preparedness (REP) program through fee assessments from utilities is 50% of the total REP budget. Since our goal is to initiate the fee collection in FY 1988, 50% of the REP program budget for FY 1988 is $3,796,000.

° Either the NRC or FEMA, and not the Treasury, should assess fees from the utilities. Statements on the advantages and disadvantages are provided for both the NRC and FEMA. No specific recommendation is made as to whether the NRC or FEMA should assess fees from utilities. While the assessment would be made by either the NRC or FEMA, the collected funds will revert to the Treasury.

° Additional legislation is needed to provide authority for either the NRC or FEMA to collect fees on the recommended "flat-fee" basis. A copy of a proposed amendment to the Atomic Energy Act to provide authority for either the NRC or FEMA to assess fees was provided to the Congress as an attachment to the report on our study.

° A "flat-fee" assessment rate for the utilities is recommended. FEMA is developing a suggested annual rate basis for both utilization (commercial nuclear power plants) and production (fuel cycle facilities and material license holders) facilities. Assessment of fees on a flat-fee basis is administratively more efficient and cost-effective than assessments made on the basis of specific services rendered on an hourly rate. The FEMA report provides data on the relative costs of administering assessments on a flat-fee basis versus a specific hourly rate. As the recommended annual rate basis was not incorporated in the proposed legislation that was previously provided to the Congress, FEMA will provide such to the Congress in the near future.

Question. How much do you estimate could be recovered by your proposed fee system?

Answer. As stated above, the proposed fee system would recover one-half of the REP program costs for FY 1988 or $3,796,000.

Question. I understand that FEMA recently released to a house authorizing committee a draft of its comments on a NRC proposed rule on the so-called local veto issue for nuclear power plants. This rule, as I understand it is designed to permit power plants to pro-

ceed towards operational status in cases where the local or state government refuses to cooperate in offsite emergency planning.

Why did the Agency release this draft?

Answer. The draft FEMA staff comments on the NRC proposed rule change were included in the response to a letter from Congressman Markey in which he requested information on FEMA's participation in the development of the NRC proposed rule.

Question. When does your Agency expect to formally comment on this NRC rule?

Answer. Prior to May 5, 1987, the expiration date for the comment period contained in the Federal Register publication.

CRIME INSURANCE

Question: The Administration has attempted for several years to terminate the Federal Crime Insurance Program. How many states currently participate in the program, including the number of policies in each state?

Answer: As of February 28, 1987, the following 17 States and 3 jurisdictions participated in the Federal Crime Insurance Program:

State	Number of Policies
New York	18,667
Florida	2,154
California	2,024
Pennsylvania	2,014
New Jersey	1,397
Massachusetts	785
Puerto Rico	759
Alabama	704
Missouri	693
Illinois	564
Georgia	379
Ohio	284
Kansas	253
Tennessee	250
Maryland	172
District of Columbia	137
Virgin Islands	120
Connecticut	110
Delaware	97
Rhode Island	47
TOTAL	31,610

In addition, the States of Maryland, Massachusetts, Missouri, Ohio, and Pennsylvania have accepted one-time payments to assume responsibility for crime insurance policies at the State level and are scheduled to withdraw from the Federal Crime Insurance Program during 1987.

Question: Is the program currently subsidized by the taxpayers?

Answer: The Federal Crime Insurance Program is currently subsidized by the taxpayers. For FY 1987, the amount of the subsidy is estimated to be $14,244,000, which does not include previous borrowings from the Riot Reinsurance Fund.

Question: What would be required in FY 1988 if Congress were to extend the Program, instead of closing out activities through the year?

Answer: If the Program were continued beyond the September 30, 1987, expiration date, a subsidy of approximately $14.5 million would be required.

Should the program be extended, further changes will be initiated in 1988 to make the program self-supporting. This will be accomplished through rate increases, the implementation of an expense constant, and coverage changes.

FLOOD INSURANCE

Question: Legislation order reported by the Senate Banking Committee maintains the limitation on annualized flood insurance premium increases at 10%, rather than allowing rates to increase by 17% as you assume in your request.

How much revenue will be lost if the 10% percent limitation is maintained? Will this have an impact on your budget request?

Answer: If the proposed rate increase is limited to 10%, approximately $40.3 million in premium income will be lost. The 17% rate increase is required to make the program self-supporting in an average loss year. If FY 1988 is an average loss year or a greater than average loss year, then the program will have to borrow money to cover its expenses. This borrowing will necessitate future appropriation requests.

Question: On April 1 new regulations will require states and localities to enforce restrictions on placement of manufactured homes in flood plains. Such siting in existing parks were previously "grandfathered" under the regulations. Please outline the purpose and intent of this regulation change.

Answer: The revisions to the National Flood Insurance Program (NFIP) criteria incorporate the term "manufactured home" in lieu of the term "mobile home" and eliminate most of the distinctions that had previously been drawn between mobile homes and conventional structures. In addition to eliminating the grandfathering of existing mobile home parks and subdivisions, the revisions remove provisions in the regulations that had prohibited placement of manufactured homes in coastal high hazard areas and in floodways. The overall "package" revises NFIP criteria so that virtually the same standards are applied to manufactured homes as conventional structures, except that separate anchoring and placement provisions are retained for clarity and to reflect differences in construction. This is also consistent with the actions of other Federal agencies

and recognizes improvements in the construction of manufactured homes.

The primary benefits from this action are twofold:

(1) removing from the general taxpayer the financial burden associated with continually subsidizing the replacement of manufactured homes in existing parks which, in contrast to other housing, have not been required to be elevated when built or placed in a flood hazard area; and

(2) the added protection which will be provided to the owners of manufactured homes which are moved into existing mobile home parks.

FEMA has published a manual entitled Manufactured Home Installation in Flood Hazard Areas. Based on the research conducted in developing this manual, FEMA has concluded that a manufactured home that is elevated to or above the base flood elevation and which is properly anchored to a permanent foundation is no more subject to damages from the base flood than a comparably elevated and anchored conventional structure.

However, once the manufactured home floor system is innundated by floodwaters, the manufactured home will sustain considerably more damage than a conventional house built at the same elevation. For this reason it is particularly important that manufactured homes be adequately elevated above flood levels. If large numbers of manufactured homes continue to be placed below the base flood elevation, the costs of providing flood insurance for these manufactured homes could be prohibitive. This will likely be true whether the cost is borne by the manufactured homeowner through actuarial insurance premiums or through taxpayer subsidies of the NFIP. Note that the NFIP currently insures about 26,000 manufactured homes and has paid nearly $30 million in claims since 1978.

Many occupants of manufactured homes may not be aware that the site on which they place their manufactured home is subject to flooding and are more likely to be retired or to be low income wage earners. These persons are generally less likely to be fully insured against flood losses and less able to recover from the loss of their home and personal property than the population as a whole. In a declared disaster, therefore, these persons are more likely to be dependent on the Temporary Housing and Individual and Family Grant Programs from FEMA and other government agencies funded by the general taxpayers and aid from private relief organizations. However, even these programs are not likely to fully restore a family to its pre-flood economic status. The disruption and the social and emotional strains that would follow a flood disaster, for the most part, would be avoided by the new requirements, which are already applicable to other types of housing, since damages and the drain on the taxpayers at large would be limited to those floods that are in excess of the base flood.

If the grandfathering of existing mobile home parks were continued, it could be expected that the manufactured homes below the flood elevation in these parks would continue to be subject to flood damages and be replaced by other manufactured homes, often of

greater value, which were exposed to the same risk of flooding. In the absence of some more restrictive action on the part of State and local government or unilateral actions on the part of some manufactured homeowners who choose to protect themselves, the number of manufactured homes exposed to flood damages in the nation would not decrease substantially over time and the hazards and threats to lives and property posed by these parks would continue far into the future.

FEMA believes that the overall impact of these regulations will prove to be a benefit to owners of manufactured housing and that by equating this form of construction with conventional housing, FEMA is recognizing the improvement in manufactured housing and simplifying the provisions of the NFIP. At the same time, FEMA is being responsive to the need to reduce the potential for damage and loss of life from flooding as well as the cost to the government and the taxpayers from the placement of manufactured and conventional housing at elevations which expose them to inordinate danger of damage.

Question: We have heard of concerns by the industry that these regulations could have substantial adverse impact. What estimates do you have?

Answer: The rule revisions will impact only manufactured home parks in existence prior to the date a community converted to the Regular phase of the NFIP. Manufactured home parks established after that date and manufactured homes placed on individual lots are already subject to elevation requirements and are not affected by the change.

The National Manufactured Housing Federation has estimated that there are approximately 2,000 existing mobile home parks containing 100,000 mobile homes that would be affected. The latter figure correlates closely with an estimate of 120,000 mobile homes that was made by FEMA prior to issuing the proposed rule. However, the rule revision only applies to new placements, replacements, and substantial improvements of manufactured homes and only about 5,000 to 10,000 manufactured homes are likely to be affected in any one year.

The degree of impact on individual mobile home parks will vary depending on the rate mobile homes are replaced and on the depth of flooding. Existing mobile home parks with low turnover rates and stable populations may only be minimally impacted except if there is major flood damage. Existing mobile home parks subject to shallow flooding (3 feet or less) can generally meet the elevation requirement using standard installation techniques. Existing mobile home parks with moderate flood depths (4 to 6 feet) generally can meet the elevation requirements by using fill or other means to elevate pads or through block or pier foundation. FEMA has estimated in its manual "Manufactured Home Installation in Flood Hazard Areas" that the cost of elevating a 60-foot long manufactured home to 6 feet above ground would range from $1,800 to $6,000 depending on the installation method chosen. Most existing manufactured home parks are believed to be subject to these shallow or moderate depths of flooding.

The greatest impacts will be on those existing manufactured home parks with high turnover rates and which are subject to the deepest flooding. Elevation of manufactured homes in these parks in feasible but the cost of elevation may increase to the point where the owners of individual manufactured homes will choose to locate in manufactured home parks in less hazardous locations. However, it must be emphasized that those flood plains subject to deep flooding are extremely hazardous areas and, in terms of potential loss of life and property, the costs associated with flooding will not be borne solely by individual owners of manufactured homes, but also the local, State, and Federal government and taxpayers in providing flood insurance and disaster assistance.

DISASTER RELIEF

Question: The Committee has always had difficulty in determining an appropriate level of funding for the Disaster Relief Account. A rule of thumb, however, has been the so-called "average" year requirement of $250 million.

How was this estimate calculated? Please provide a table showing appropriations and actual use for the past ten years.

Answer: The $250 million annual estimate is based on average annual obligations from 1980 through 1986, omitting the high and low years, and allowing about $50 million a year for recoveries.

TEN-YEAR FUND HISTORY
(Dollars in Thousands)

Fiscal Year	Appropriations	Obligations
1976	$150,000	$242,725
TQ	37,500	83,301
1977	300,000	363,695
1978	440,716	442,947
1979	386,772	373,365
1980	1,063,600	849,095
1981	358,449	228,964
1982	301,694	115,114
1983	130,000	245,231
1984	...	296,420
1985	100,000	319,172
1986	345,700	497,734

Question: What is the current status of available funds in the Disaster Relief Account?

Answer: As of March 31, 1987, the balance of available funds in the Disaster Relief Account was $128 million.

Question: Your statement notes that this level of funding, following the homeless bill transfer and recission - may not be adequate to cover needs this fiscal year ... and that even if we make it through FY 1987, insufficient funds will be carried into FY 1988 to meet an "average" year requirement.

Has FEMA requested a supplemental appropriations request from OMB to make up this shortfall? What is your estimate of required funding to restore this account to meet "average" needs for FY 1987, leaving sufficient carryover to fully fund FY 1988?

Answer: FEMA has not requested a supplemental appropriation for the Disaster Relief Fund since it appears that current balances will be sufficient to meet FY 1987 requirements if it is an "average" year. Approximately $55 million would be required in FY 1987 to allow sufficient carry over to fully fund FY 1988, assuming program initiatives result in $20 million in savings and recoveries are $50 million in FY 1988.

EMERGENCY FOOD AND SHELTER

Question: The Administration has in the past expressed concern over constitutional problems with the Food and Shelter Board. What were these concerns?

Answer: The problems raised concerned the constitutional standing of Emergency Food and Shelter National Board members. These concerns were addressed by making the Board members special governmental employees and by only allowing the private voluntary organizations to nominate a representative to the Board. The final appointment authority for Board members was given to the Director of FEMA.

Question: Congress is considering legislation to raise the limitation on administrative expenses of recipient agencies from 2% to 5%. Does FEMA have a position on this matter?

Answer: All studies we have seen at FEMA confirm what other National Board members have stated: administrative costs for this program exceed 2%. It had been our position that voluntary organizations should be willing to make the sacrifice of a small administrative allowance in order to help an emergency program deliver necessary services that are being supplemented with Federal funds. This supplemental emergency program funding is now headed into its fifth year with its largest appropriation yet. This represents a change in circumstances and we feel an adjustment in the administrative allowance is necessary.

Question: When Congress was considering the $50 million supplemental for the Food and Shelter Program, questions were raised as to how quickly these funds would actually be used. What is the current status of these funds? Please outline the disbursement steps for funds in this program. Is there a mechanism to determine actual expenditure of funds for services?

Answer: Following a Senate amendment, the actual amount appropriated to the Emergency Food and Shelter Program under Public Law 100-6 was $45 million. The President signed it into law on February 12, 1987. FEMA was officially notified on February 19, and on that date awarded the $45 million to the National Board. The following day, February 20, the Board met and decided on an allocation formula for the supplemental funds. On March 5, 1987, Local

Boards were notified of the amounts their respective jurisdictions would be receiving. Local Board plans for these funds began arriving back to the National Board offices on March 13. Funds have been obligated to many localities, mostly supplementing the previous FY 1987 allocation of $70 million which is now almost totally exhausted.

As for funds for services, since only 2% is for administrative expenses, the remainder is used for program services. This has been monitored by: mandated reports and submission of all documentation, monitoring by Local Boards, site audits by Office of Inspector General, FEMA, and site visits by National Board staff and members. All sources report generally proper expenditures for intended services.

QUESTIONS SUBMITTED BY SENATOR D'AMATO

Question: General Becton, I'd like to ask a few questions with regard to FEMA's role in the licensing of the Shoreham Nuclear Power Facility on Long Island. A Newsday article on Sunday, March 15, 1987, made reference to a draft FEMA document which stated that state and local government participation is essential to adequate emergency planning. This draft document is being prepared in response to a proposed NRC rule which would eliminate the requirement for state and local participation in emergency planning. The draft, while not yet FEMA's official position, states that "FEMA believes the non-cooperative stance of some state and local governments stems from a genuine public concern for the health and safety of those people living in the vicinity of nuclear power plants. We believe these rights and concerns should be respected." I have several questions regarding this report.

---- First, do you agree with the language quoted above?

Answer: The quotation attributed to FEMA is accurate and was a draft staff position at the time it was published in the Newsday article on March 15, 1987.

Question: Is state and local government cooperation critical to protect the public safety, from FEMA's viewpoint?

Answer: Yes. FEMA has consistently taken the view that participation by State and local governments in offsite planning and preparedness activities related to commercial nuclear power plants is essential for a FEMA finding of adequacy of such offsite activities.

Question: Will this be reflected in the Agency's final comments to the NRC?

Answer: The Agency's comments are still in draft form. This position is reflected in this draft.

Question: If not, is FEMA being pressured from the NRC, the administration, or any other source to change this draft?

Answer: See answer above.

Question: How would you define the word "rights" in the above quote? What are the rights of people living in the vicinity of a nuclear power facility?

Answer: The quotation in the Newsday article is incomplete. The term "rights" was introduced in a previous paragraph of the draft FEMA staff comments on the NRC proposed rule. This paragraph reads as follows:

> "States have consistently asserted their right to be (or not to be) involved in the offsite planning and preparedness at nuclear power plants and have been led to believe that they

have a right through NRC and FEMA regulations and the manner in which these regulations have been applied.

FEMA believes that the non-cooperative stance of some State and local governments stems from a genuine concern for the health and safety of the people living in the vicinity of nuclear power plants. We believe these rights and concerns should be respected. We also believe that unequivocal assurance that the public health and safety can and will be protected without State and local participation in offsite emergency preparedness is necessary for the nuclear power plants in question to be licensed. Notwithstanding the compensatory measure discussed in the NRC staff paper, we believe that the proposed rule making does not give that assurance."

We believe that this quotation adequately defines the term "rights" insofar as States are concerned. As for the rights of the people living in the vicinity of a nuclear power facility as they relate to emergency preparedness, FEMA believes that their government should provide reasonable assurance that their health and safety will be protected in the event of an accident at a commercial nuclear power plant. There are specific rights of citizens provided for in Federal regulations including: (1) Participation in public meetings in which information is provided on emergency response plans and exercises under the FEMA rule 44 CFR 350; (2) The right, in the licensing process, of citizens to petition the NRC and take legal action against the utility or Commission on safety matters of concern to them; and (3) The provision of information to the public in the form of brochures and notices (e.g., telephone books) on how they will be notified and what their initial actions should be in an emergency.

Question: I have introduced legislation, S.100, which contains several provisions regarding FEMA's role in emergency planning for nuclear facilities. For example, it requires FEMA to make a finding, before any plant is licensed, that the emergency evacuation exercise can assure the public safety. It requires that these plans be successfully tested each year. I would be most interested in having your official comments on S. 100.

Answer: FEMA had not been asked either by a member of the Congress or the Office of Management and Budget for its official position on S.100, until Senator D'Amato's request made during the hearings. We, therefore, have not had sufficient time to develop the official position of the Agency.

Question: Have you or any member of your staff met with representatives of LILCO or the nuclear industry regarding Shoreham? If so, I would appreciate it if you would provide the dates of those meetings, the names of those attending, and any notes or records of the meetings. I would also appreciate this information on any meetings you or your staff have had with staff of the Department of Energy or the White House regarding Shoreham.

Answer: Because of the uniqueness of the Shoreham situation and the fact that it has been an issue for nearly half a decade, FEMA staff have, over the years, met with representatives of LILCO, the State, Suffolk County and with officials from NRC, DOE, and private individuals in an effort to understand problems and concerns, and to discuss possible solutions. In this regard, FEMA tries to be responsive to many sets of concerns. We must cooperate with the NRC in its regulatory role, we must understand the applicant which the NRC regulates and we must both understand, and if possible, assist, State and local government and other emergency response responders.

FEMA's primary mandate is to protect the public health and safety. In most cases, this includes working with State and local governments. However, we have received Congressional guidance, e.g., through the FY 1986 House Report for the HUD and Independent Agencies Appropriations Bill (HR 99-212), which directed FEMA to carry out its responsibilities in communities within the emergency planning zone of nuclear power plants, regardless of non-participation on the part of State and local governments. In order for FEMA to carry out its responsibilities and respect Congressional guidance, it has been necessary to communicate with LILCO. This was especially true during the planning and conduct of the off-site portion of the Shoreham exercise conducted in February 1986, due to the absence of State and local government cooperation and participation. Meetings were held with DOE to discuss support and assistance related to the conduct of a potential Shoreham exercise. For example, FEMA sought DOE support in providing evaluators from the national laboratories and additional DOE staff support on the Regional Assistance Committee.

In addition, due to the current Shoreham litigation involving two Atomic Safety and Licensing Boards, FEMA Counsel has on occasion communicated with LILCO and intervenor representatives.

Questions Submitted by Senator Domenici

TWO-YEAR BUDGET CYCLE

Question: Director Becton, I am delighted to be here with you today to have an opportunity to learn firsthand about your experience with a two-year budget cycle. As you indicate on page 2 of your statement, FEMA submitted a two-year budget request for its defense-related civil defense and federal preparedness activities.

After your first experience with a biennial budget, would you favor a two-year budget process for your overall agency if sufficient flexibility to address supplementals and other changing circumstances were maintained? Why or why not?

Answer: Yes, FEMA would favor a two-year budget process if sufficient flexibility were maintained, particularly if the cycle were established so that the request and enactment years did not coincide with Congressional election years. A two-year process would increase stability, provide an opportunity for concrete multi-year planning, and reduce the loss of operating time from first quarter funding uncertainties, as discussed below.

Question: What benefits might FEMA derive with a two-year appropriation cycle?

Answer: FEMA anticipates that a two-year appropriation cycle would produce benefits in the following areas:

- A two-year appropriation would provide increased stability, both in resources and in policy initiatives, through the elimination of the second-year request process.
- This stability would allow for development of concrete multi-year plans at least across the two appropriated years, as opposed to the current situation, where resources and policy issues are sometimes not resolved until after the beginning of the appropriations year.
- Successful experience with two-year operating plans would foster bonafide multi-year program planning, since the usual five-year span would encompass only three request cycles.
- While year-to-year planning and budget adjustments would most likely continue, the agency-wide effort required to prepare annual formal packages both for OMB and for the Congress would be reduced.
- A two-year appropriation would allow two-year procurement cycles, greatly improving the work flow in that process, particularly in the second year of the cycle.

Question: What difficulties did you experience as you prepared a two-year budget request for FEMA's defense-related activities?

Answer: FEMA did not engage in a true biennial budget process for the FY 1988 request, since it was not decided until shortly before transmittal of the President's Budget that FEMA's defense-related activities should be included in the President's two-year Defense request. Therefore, the ability to raise initiatives and appeal OMB guidance levels was absent, and the 1989 request was, for the most part, straightlined from the 1988 request levels.

Some portions of FEMA's 1988 request were conceived and presented as multi-year budgets, notably the amendment to the Civil Defense request, but were also straightlined into 1989. However, aside from the issue of timing and the absence of substantive discussion of the 1989 request, FEMA experienced no difficulties in preparation of our two-year request.

Question: Would you expect FEMA to realize any budget savings if you could plan your budget on a two-year basis? If so, how much would you estimate could be saved?

Answer: It is difficult to assess the resource impact of a two-year budget. It is possible that the impact of a two-year appropriation might be to reduce year-end lapse, and thus, in a sense, result in increased outlays. If the current yearly activities connected with the annual budget request process were indeed reduced to a minimum in alternate years, it is possible that "return on the dollar" would be improved through the ability to utilize staff resources to improve planning, controls, and program effectiveness.

In the short term, therefore, absolute dollar savings seem not so probable as significant improvements to program and financial management. Over the longer term, the stability of a two-year cycle might produce actual savings through improvements in acquisition management, workforce stability, overall efficiency, and longer-range planning. Since the process is as yet undefined, it is difficult to foretell.

Question: Approximately what proportion of FEMA's annual appropriation request would you consider to be simply repetitious of the previous year's submission?

Answer: In terms of resource requirements, those FEMA programs with smaller appropriations have remained fairly constant over the past several years. FEMA's requests to Congress will probably reflect stable resource requirements for them for the next few years.

Of the Agency's two largest programs, resources requested for Government Preparedness have increased steadily over the past few years on the basis of projects necessary to meet established schedules, and can be expected to continue to change in the near future. The Civil Defense resource level has fluctuated considerably in the past few years.

However, program activities in all FEMA programs, small and large, have undergone a process of continual evolution. Therefore, even where resource levels requested can be expected to remain constant, the specific activities and undertakings for which they are requested will not repeat from year to year.

QUESTIONS SUBMITTED BY SENATOR GRASSLEY

FUNDING LEVELS FOR THE EMERGENCY MANAGEMENT ASSISTANCE FUND

Question. I have received some correspondence from constituents expressing concern about the Emergency Management Assistance fund. They say that the Federal funds received through this program are the only thing keeping their local disaster agencies alive.

Does your budget proposal keep the funding level for this program at an adequate level?

If so, is there anything else in the way this program is administered from the Federal level which would cause these constituents to fear cuts in their Federal grants?

Answer. Emergency Management Assistance (EMA) funding in FY 1985 was approximately $57 million. In FY 1986, it was reduced due to deficit reduction measures to $54.488 million and is proposed to stay at $54.123 million for FY's 1987 and 1988.

During the major budget reductions from FY 1985 levels of approximately 30% FEMA sustained in the Civil Defense program in FY 1986, EMA was reduced only by 4.3%. A number of other programs were reduced to very low levels or to no funding. The modest increase proposed for FY 1988 is being distributed to these other program elements. The increase in the Individual Mobilization Augmentee (IMA) program for FY 1988 is seen as a means to supplement the EMA activities with well trained personnel at a relatively low cost.

The only fear any EMA fund recipient should have over fund termination would be for nonperformance.

FEDERAL EMERGENCY MANAGEMENT AGENCY AND SUPERFUND

Question. Another concern that has been brought to my attention by constituents is that FEMA has established a policy that State and local officials who are partly funded by FEMA funds cannot be utilized to implement the emergency planning portion of the Superfund Amendments Reauthorization Act.

My constituents obviously think that this is inappropriate. Could you comment on this matter please? And I would like to know your justification for this policy.

Answer. Resources furnished to State and local emergency offices, through FEMA, under the Civil Defense Act are not intended to provide staff support for State emergency response commissions to implement emergency planning and training provisions in Title III. There are several reasons for this position.

First, as a result of additional resources in the FEMA and Superfund interagency budgets, each FEMA Regional Office should have

two workyears to implement the HAZMAT Program by the end of FY 1987. These expanded resources will provide support and technical assistance to State and local jurisdictions in the areas of emergency planning, training, public information, and the community right-to-know provisions of Title III.

Second, Congressional guidance made it clear that the Title III provisions were State and local responsibilities and not to be implemented with Federal funds. Thus, FEMA would be in opposition with Congressional intent if the burden of Title III implementation were simply shifted from one Federal agency to another.

Third, the Joint House and Senate Armed Services Committee report of 1985 directed FEMA to focus civil defense funded activities more sharply on national security activities.

Fourth, the recent GAO exit briefing provided information to FEMA on instances of the inappropriate exclusion of national security activities by fund recipients using civil defense funds. The suggestion implied that a primary focus on natural or techno logical hazards was a misuse of funds under the Civil Defense Act.

Fifth, the Civil Defense Act activities are presently suffering from a lack of resources to accomplish their primary purpose as provided by law. Focus by State or local jurisdictions on Title III would detract from the Civil Defense program.

STATE MATCHING FUNDS FOR NATURAL HAZARD GRANTS

Question. You note in your statement that State and local cost sharing is proposed for earthquake, hurricane, and other natural hazard grants and for student travel stipends at the national emergency training center.

Have you analyzed the potential effects of this policy on the over-all level of support which will go into these activities, and, if so, what did you conclude? More specifically, will we see an overall reduction in this level of support for these activities?

Answer. Yes, we have analyzed the potential effects of this policy.

- The impact of cost sharing natural hazards grant programs will fall primarily upon the Earthquake Preparedness Program and, to a lesser degree, upon the Hurricane Preparedness Program. With respect to the Hurricane Preparedness Program, the majority of FEMA's funding supports studies by the Corps of Engineers through an Interagency Agreement. Only a small portion goes directly to States.

- Cost sharing will result in a reduced level of Federal financial support for the Earthquake and Hurricane Programs. This reduction will hopefully be offset by the State and local contributions.

- FEMA believes that having States share the cost of Federally

supported earthquake hazards reduction programs is an effective way of developing and sustaining their commitment to earthquake hazard information. This is significant because State and local governments have the primary responsibility for the protection of lives and property from the consequences of damaging earthquakes, as part of their overall responsibilities related to public health, safety, and welfare. In addition, State and local governments are in a position to influence earthquake hazard reduction through land use mitigation.

° It is likely that time constraints may prohibit some States from securing the required State cost sharing contribution from their legislatures in order to be eligible for participation in these programs beginning in FY 1988. We are hopeful that over time these States will be able to secure the funding required for future program participation.

° The phase-in of the student cost sharing will take place over a three-year period. This is to allow State and local governments an opportunity to make adjustments in their budgets. The government will continue to provide the training and education at no cost. The cost sharing affects the expenses of attendance such as travel.

ELIMINATION OF GRANTS TO STATE, LOCAL, AND VOLUNTEER GROUPS FOR FIRE PREVENTION

Question. Your statement also notes that the budget request includes the elimination of grants to States, local and volunteer groups for fire prevention and arson control because these activities can be handled below the Federal level.

What kinds of activities do these funds now support, or have they traditionally supported?

When you say that these activities can be handled below the Federal level, do you mean to say that they should be or that the groups and organizations which received these funds have the wherewith-all to handle them? Specifically, do you contemplate a drop-off in these activities as a consequence of this policy?

Answer. The Office of Fire Prevention and Arson Control is responsible for all fire prevention, public education, and arson mitigation programs of the U. S. Fire Administration (USFA). For the past five years, this Office has supported a variety of research, development, technical assistance, and education and awareness programs including:

° Anti-arson initiatives
° Residential sprinkler efforts
° Public Education and Awareness Programs
° Community volunteer and community-based efforts
° Other targeted research and technology initiatives

Three focused grant programs with State and local governments are currently supported by Fire Prevention and Arson Control funds:

1. Community Volunteer Fire Prevention Program. The purpose of the Community Volunteer Fire Prevention Program is to increase the scope and effectiveness of local fire prevention efforts through the increased involvement of ordinary citizens through a merger of

local, State, and Federal resources with the private sector to support new and existing community fire prevention, education, and protection programs. Grants are awarded by the USFA to selected States to strengthen existing fire safety programs or to create new ones. There are currently 29 States and the District of Columbia participating in the program. Community volunteers and the local fire company are the principal agents that can make the program work. The program as originally designed was to be self-terminating in FY 1992. The program utilizes Federal funds to build the capacity of local community organizations to develop and sustain fire prevention programs. Each State participating in the program and its local organizations were to receive a diminishing level of funding for three years, subsequently reduced to two years, during which period the capacity to develop and present programs was supported, and during which the capacity to attract support from non-public sources was enhanced by technical assistance and other support mechanisms from the USFA. Some programs would continue without Federal assistance, depending on the degree to which the program has already been established.

2. Community groups, particularly housing oriented ones, are an excellent source in the mitigation of arson related fires. They have a vested interest in the success of anti-arson efforts in these communities. The USFA has funded these groups for the past three years. These organizations have been able to develop local targeted projects capable of attracting the involvement of area residents. State and local governments have not had the resources to fund these types of local, anti-arson activities that are proving to be very successful in promoting education and action. The Federal money, in most cases has been used to leverage private sector sources; without the perception of Federal support, local private sector funding may fade.

3. Residential, Quick-Acting Sprinkler Retrofit. This retrofit project is demonstrating the lifesaving capabilities of residential sprinkler systems among urban, high fire risk populations and, at the same time, improving housing stock preservation. The USFA is carrying out this demonstration effort in a cooperative program with the Department of Housing and Urban Development (HUD), which is accomplishing energy conservation retrofit in the same buildings. The five cities participating in this program would not have done so without USFA grant support. The USFA has been the driving force for the development of quick-acting fire sprinkler heads that make feasible the installation of residential fire sprinkler systems for life safety purposes. No municipality with high risk inner city populations has undertaken the support of the installation of such systems in structures similar to those in the demonstration project. It is unclear whether State and local governments will support from their own resources, the installation of demonstration or residential fire sprinkler systems.

Summary: The Administration's intention is to have State and local governments support the USFA programs that have demonstrated the capacity for success in addressing fire problems and that have the potential for self-sufficiency. The Federal focus will remain on those programs where a Federal role can be demonstrated and could not be supported otherwise.

Questions Submitted by Senator Hatfield

Question: What has USFA done to follow through with the Committee's recommendations for networking of fire education professionals as discussed on page 56 of last year's report?

Answer: Over the past year, the USFA through contract support interviewed over 80 Public Information and Education Officers from fire departments across the country.

These interviews were conducted to ascertain U.S. public fire education activity, to discover worthwhile programs for replication, and to develop other ideas for the exchange of information and resources among the public fire education community.

The results of these interviews were published in the 197 page report by the USFA in February 1986.

Much of the information gleaned from interviews with educators, instructors, and Public Information Officers of local fire departments was then compiled by the USFA and issued in its Public Fire Education Today.

The USFA has advertised the availability of this publication in fire trade magazines and has also mailed this publication to more than 200 departments and other interested respondents across the country. The publication has now gone into its third printing due to requests from all over the country.

In addition, the USFA contractor works closely with USFA in coordinating speaker's slots for USFA spokespersons to present the USFA's public education campaigns which include a broad range of public and private organizations concerned with fire education and awareness.

Question: What evidence is there to show what education packages currently developed by USFA are being carried forth in local communities after the initial drop off?

Answer: The USFA programs -- particularly the USFA media tours and the Smoke Dectector Campaign Kit -- were designed to create the initial impetus for local fire safety efforts through local fire departments.

In accordance with contract provisions, the USFA contractor has tracked queries from the field through telephone and correspondence logs and newsclips. All inquiries, requests for USFA materials, speaker's slots, and comments on USFA's Smoke Detector Campaign, are detailed in a contact log which will be tallied at the close of the Smoke Detector Campaign. Burrelle's Press Clipping Service has tracked local smoke detector programs with over 500 clips since the Smoke Detector Campaign kick-off in early November. Camera-ready feature articles "Good News Department" and "Did You Know?" have reached 5,562,297 and 3,651,425 readers, respectively.

Many local fire service personnel requested a USFA Smoke Detector Campaign Kit after reading an announcement in the various fire trade magazines -- Fire Command, The International Fire Chief, etc. To date, the FEMA Publications Office has filled over 565 requests for a USFA kit. USFA also sent Smoke Detector Kits to the 96 International Association of Fire Chiefs (IAFC), Metro Chiefs, the National Volunteer Fire Council (NVFC) State and local directors, the International Association of Black Professional Firefighters (IABPFF) Chapter Presidents, and 50 State Fire Marshals.

In addition, a questionnaire was sent to more than 750 kit recipients asking for their feedback. Most replies were very favorable. The West Chester, Ohio Fire Department painted the phrase "Smoke Dectector -- A Real Protector" on their fire apparatus, stationery, and on complimentary pens, which were distributed within the community. In St. Louis, Missouri, the Fire Academy Battalion Chief mounted camera-ready artwork on art boards which he uses for displays at press conferences, shopping malls, libraries, etc. The same Chief also used the radio public service announcement (PSA), press release, and letter to the editor. In Anchorage, Alaska, the radio PSA's and press releases were used, and a smoke detector test day was established by Mayoral proclamation.

The USFA contractor has also conducted one-on-one telephone follow-up interviews on USFA's radio and television public service announcements. To date 28 radio PSAs, and 35 television PSAs have been aired. The National Association of Broadcasters put the TV PSA on satellite feed, and in May the radio spots will also be put on satellite feed.

In the 20 cities where USFA conducted media tours, the USFA contractor contacted the fire departments for feedback. The fire departments were very pleased with USFA's efforts which strengthened their media contacts through the media tours. The Philadelphia Fire Department used the USFA tour to kick-off a local smoke detector campaign in which 17 radio stations and 33 local newspapers participated. In St. Paul, Minnesota, illustrations from the smoke detector kits were used in the legislature to help pass a bill requiring each newly-constructed home to install smoke detectors before the home is sold. In Boulder, Colorado, the local fire union set up a smoke detector booth at Cashway Lumber Company, using USFA campaign materials.

Follow-up with the media who participated in the USFA media tours also indicated a positive response. In New York City, an article on smoke detectors and USFA was run in the Spanish language newspaper, Noticias del Mundo. In Atlanta, Georgia, a story was run in the "Intown Extra" section of the Atlanta Journal/Constitution, a radio interview was aired on WKLS-AM/FM as part of the "What's Up" program, and a 15-minute segment was aired on WAOK-AM as part of the "Atlanta Insight" program. In Boston, Massachussets, The Christian Science Monitor ran an editorial on 12-12-86, which was also picked up by the Wyoming Tribune Eagle of Cheyenne and run on 12-21-86.

Overall, the USFA is satisfied with the initial campaign effort particularly the fire service response. Given the fact that the

USFA has not had a large presence in this public fire education area over the past four years, it is rewarding to see both the renewed interest and support for a stronger USFA role.

Question: What impact are the awareness campaigns (developed for USFA by Ogilvy & Mather) having on local fire education efforts, and what measurements are taken to measure community awareness enhancement?

Answer: The USFA media and public education programs have, in the past fiscal year, not only marked a radical departure from previous fire safety efforts, but have increased public awareness of fire safety issues to better meet the mandate given to USFA by Congress. The USFA is making progress in persuading fire departments to concentrate more on fire prevention and public education programs.

The USFA has had an impact on local fire education efforts, particularly through its campaign materials. As mentioned earlier, the response to this campaign of the fire service, public educators, media, and others has been excellent.

The campaign kits were used in many cases to launch fire safety and public education programs where none previously existed. Campaign kit reply cards, random fire department follow-up calls, and a series of self-mailer "nudge" letters all have confirmed that the recipient fire departments used the kit to embark on their own fire education campaign.

The centerpiece of their programs has been the smoke detector installation and maintenance issue, which is the main topic of the kit. Over 90% of the metropolitan fire chiefs surveyed have used the campaign kits in their local public education efforts, and the smoke detector campaigns have attracted the attention and cooperation of other civic organizations, like the Red Cross, the American Association of Retired Persons, and the Farm Bureau.

In addition, regular compilations of news clippings show the enthusiastic response the local fire departments have given the USFA campaign materials. Regional fire service organizations, along with local chapters of the civic groups and area businesses, have teamed up to promote smoke detectors under the USFA's campaign theme, "It's a Real Protector - A Smoke Detector." Inquiries are kept on file from fire service organizations or interested parties who inquire about USFA's campaign kit and fire education programs.

The USFA media tour, in conjunction with radio and television public service announcements (PSAs) sent to 274 television and 463 radio stations in the U.S., resulted in exposure to previously untapped publications, especially in the high risk demographic groups of Blacks, Hispanics, the elderly, and rural Americans. These high risk groups were then targeted for a second round of print and electronic PSAs, to maximize their exposure to USFA's media outreach.

While exact quantification of USFA's community awareness and media program is difficult, USFA hears from communities and fire

and civic organizations asking for more information and assistance regarding smoke detectors.

Another USFA public awareness campaign targeting community involvement in Fire Safety education is being formulated and implemented: The CEASE Fire! campaign, USFA's local citizen education and involvement program. Its acronym stands for "Community Education and Safety Extinguishes Fire," and it constitutes the second major stage of USFA's multi-faceted campaign to bring fire safety awareness to the public. The CEASE Fire! program will solidify grass roots involvement at the community level, which the smoke detector campaign helped stimulate.

The implementation and impact of the USFA's smoke detector campaign is being tracked through myriad means: electronic broadcast monitoring, gathering of newsclips, research surveys, campaign kits and user reply cards, telephone follow-up with fire departments and the media, PSAs and their bounce-back cards, direct mail 'nudge' campaign on kit usage, and media follow-up on features on USFA's campaign in the fire trades and other press. With the support of local fire departments across the U.S., along with community involvement, the USFA's fire education and prevention program will make an even greater impact in the coming months.

The USFA contractor, Ogilvy & Mather, is required to submit an evaluation of the implementation of local public education and awareness activities, initiated as a result of the USFA campaign.

Questions Submitted by Senator Inouye

TRUST TERRITORIES DISASTERS

Question: Within the past 6 months there have been 4 disasters that have occurred within the Territories. Two were severe storms and two were tornadoes.

Answer: Since June 1986, there have been four major disaster declarations in the far Pacific area. Three were declared as a result of typhoons and one was declared as a result of a hurricane. The declarations were as follows:

- FEMA-765-DR, Trust Territory (Ponape) declared June 3, 1986, as a result of Typhoon Lois.
- FEMA-783-DR, Northern Marianas (Saipan) declared December 12, 1986, as a result of Typhoon Kim.
- FEMA-785-DR, American Samoa (Manua Islands) declared January 24, 1987, as a result of Hurricane Tusi.
- FEMA-786-DR, Micronesia (Ulithi Atoll and Fais Island) declared February 2, 1987, as a result of Typhoon Orchid.

Question: How long did it take for national disasters to be declared and for initial relief to be supplied by FEMA?

Answer: Once a complete Governor's request was received, a Presidential declaration was made in two to five days. Disaster Application Centers (DAC's) were opened three to five days following the declaration.

Question: Was assistance requested by the Office of Territorial and International Affairs of the U.S. Department of the Interior?

Answer: The Department of Interior did urge supplemental Federal disaster assistance for the Northern Marianas, American Samoa, and Micronesia.

Question: We understand that the Secretary of Interior sent supplies to American Samoa several days prior to FEMA arrival in the Territories, is this true?

Answer: It is our understanding the Department of Interior did provide some supplies, but we do not have the details of the types or amounts provided. This is an appropriate role for the Department, especially in view of their presence in the Territories.

Question: Have there been discussions assuring a more rapid response to disasters in these remote areas?

Answer: The response times noted in the first answer, above, compare favorably with major disasters that are declared in the continental United States. When considering the vast distances involved in traveling both to and within the affected areas in the far Pacific, as well as difficulties in communications, FEMA believes its response is timely and responsible. We constantly strive to improve disaster response activities by critically examining our disaster operations through intra-agency workshops and meetings. We are planning to meet at the end of April with territorial government representatives and other Federal agencies to determine what improvements should be made to overcome some of the unique problems presented by disasters in the islands and ensure that emergency assistance is provided as quickly as possible.

Question: What were the recent results relative to contingency funds being established for disasters in the territories? Should the Secretary of the Interior be given authority to release funds to these remote areas until the President can declare a national disaster in these instances?

Answer: We are not aware of contingency funds being established for disasters in the former or present Trust Territories. Due to the supplemental nature of the Disaster Relief Act, FEMA has always encouraged the establishment and use of contingency funds by State and local governments in fulfilling their responsibility.

The question of providing the Secretary of Interior authority to release funds to these remote areas until the President can declare a major disaster deserves discussion. Not all requests for major disaster declarations result in declarations by the President. By law, the situation must be of such severity and magnitude that effective response is beyond the capabilities of the State and its local governments. Further, if Department of Interior provided certain funds, care would have to be exercised to preclude the duplication of benefits, which is prohibited under the Disaster Relief Act.

Questions Submitted by Senator Adams and Senator Evans

Question 1. Is it the policy of FEMA that national security exercises must be based on an exercise scenario which includes the detonation of foreign nuclear warheads over the territory covered by the exercise? Would FEMA accept a scenario which includes increasing international tension and domestic unrest, leading to, but not including, nuclear detonations? Is FEMA willing to work with states to develop scenarios which test readiness but do not involve the detonation of foreign warheads?

Answer 1. FEMA's exercise policy requires a functional, national security exercise once every 3 years. Detailed scenarios are dependent upon the function being exercised and individual negotiations between FEMA's Regions and the States.

The exercise for Washington was a requirement of the 1987 Comprehensive Cooperative Agreement (CCA) and was negotiated with the State at a series of meetings and exchanges of correspondence beginning June 4, 1986, and continuing through January 27, 1987.

Since Governor Gardner's refusal to participate in the exercise, we have continued to negotiate with the State and have offered to have a new scenario written by a team composed of a representative from the State of Washington, a representative from the State of Oregon, and a representative from FEMA Region X. The two requirements for such a revised scenario are:

a. The scenario must be based on a period of increased international tensions, and

b. It must include the detonation of foreign warheads on the Pacific Northwest.

FEMA believes that both of these requirements are essential if the exercise is to accomplish its stated civil defense purpose, consistent with the law and the agreement both parties signed.

Question 2. Is it FEMA's opinion that in order for states to receive civil defense funds they must participate in a national security exercise which includes planning for the relocation of segments of the population? What is the legal basis of your opinion on this question?

Answer 2. State and local civil defense plans are based on providing either in-place shelter or relocation of the population away from the direct effects of nuclear weapons. FEMA requires exercising these plans.

The legal basis for population relocation planning is found in Section 501(a) of the Federal Civil Defense Act which reads:

Section 501(a) It is the sense of Congress that --

(1) a civil defense program providing for the relocation of the population of risk areas including the larger United States cities ... may be effective in protecting the population. [50 USC app 2301]

The legal basis for exercise requirements is found in Section 205(b) of the Federal Civil Defense Act, which directs the "...Administrator to establish such other terms and conditions as he may deem necessary and proper."

Depending on the option selected, the scenarios for national security exercises should test the adequacy of the jurisdiction's civil defense measures.

Question 3. Does FEMA anticipate entering into negotiations with the State of Washington to renew the Comprehensive Cooperation Agreement to cover Fiscal Year 1988? What are the potential obstacles to concluding such an agreement?

Answer 3. FEMA will invite 56 State and Territorial governments, including the State of Washington, to apply for funds available. Obstacles to reaching a satisfactory conclusion to negotiations could involve several factors individually or in combination:

- Unwillingness of the applicant to agree to adhere to program requirements;

- Nonperformance in the prior year by the applicant; and

- A variety of technical reasons such as inability to provide the required level of matching funds, etc.

Question 4. What could be the potential impact on the health and safety of the citizens of Washington State should FEMA withhold civil defense funds as it is threatening? What are the potential long-term impacts should a Comprehensive Cooperation Agreement fail to be concluded?

Answer 4. The potential impact of the withholding of civil defense funds would vary depending upon the amount of State and local funds which would be appropriated for emergency management purposes. Long standing national policy has recognized that protection of the health and safety of their citizens is a a responsibility of State and local government. Even if the State and local jurisdictions were willing to fully fund the salaries and expenses of the emergency managers currently supported by FEMA, it is most unlikely that they would be willing or able to provide the communications assets, specialized protective measures, and the emergency management training capability currently provided under the Comprehensive Cooperative Agreement. There is little doubt that the ability of State and local governments to respond to natural and technological disasters would be substantially reduced. Obviously, State and local capability can only be determined based on their assignment of priorities and resources when Federal funding is

excluded. In the unlikely event of a nuclear attack on the United States by a foreign aggressor, tens of thousands of Washington citizens living in the vicinity of the many major defense installations in the State of Washington could die needlessly because of the lack of civil defense plans and capability due to a reluctancy to do attack preparedness specifically in-place shelter or evacuation.

Question 5. In the past five years, how many states have indicated to FEMA that they are unwilling to participate in various attack scenarios? How has FEMA responded to states which have taken such a position. Have any funds been withheld from states in the past?

Answer 5. Prior to the action of Washington's Governor, in February 1987, no State has refused to participate in an attack scenario. Uniformly, the States have been aware of what was expected of them through the negotiations of the Comprehensive Cooperative Agreement. Problems have been negotiated prior to the execution of that agreement, and the States have uniformly complied with their contractual responsibility.

Five States have notified FEMA that population relocation planning is unacceptable solely for nuclear attack, the State of Washington being one of them. No funds have been withheld as of March 1987. We monitor these situations, like the case in Washington.

Question 6. FEMA is increasing its emphasis on developing plans for attack related civil defense preparedness. In that context, are those plans based on a strategic doctrine of Mutually Assured Destruction? Do those plans anticipate an increase in Strategic Defense capabilities? Are plans being developed for a variety of attack environments or do they focus on a massive attack which takes place only after a period of increased international tension? Please specify the parameters of the attack scenarios being developed by FEMA and tested in the field.

Answer 6. FEMA's increased emphasis on civil defense programs and plans is not based on any specific strategic doctrine, technical achievement, or attack pattern. Rather, the program is designed to be responsive to the intent of Congress as set forth in the Federal Civil Defense Act of 1950, as amended. Specifically, FEMA believes that its actions are consistent with the 1980 amendment which provides the "sense of Congress" and clearly mandates an improved Civil Defense program (50 USC App. 2301).

FEMA has been rather forcibly reminded of this congressional intent by:

a. The Senate and House Armed Services Committees in their July 29, 1985 Conference Report, which stated that:

> The Conferees are concerned about an apparent lack of focus and direction in the current civil defense program. This situation is manifested in the funding emphasis on State and local civil defense programs, which, while meritorious, is a questionable use of national defense

budget resources....

b. A General Accounting Office (GAO) audit team that has been examining the way in which civil defense funds are actually used, based in part on field work in three regions and six States. The GAO audit team advised FEMA, in their exit interview last month, that the general pattern they found was of progressive dilution of attack emphasis from headquarters to regional, to State, to local levels.

FEMA's concern is to be responsive to the law and to the congressional guidance noted above.

It should be noted that the new National Security Decision Directive on Civil Defense (NSDD 259), approved by the President on February 4, 1987, states, "It is the policy of the United States to have a civil defense capability as an element of our overall national security posture."

Accordingly, FEMA believes that its increased emphasis on civil defense programs and planning is consistent with its congressional mandate as well as this Administration's policy.

Question 7. In FEMA's "Report for the Senate and House Committees on Armed Services on National Civil Defense Program" dated July 3, 1986, the Agency indicated that "an optimum civil defense capability [which] would seek to maximize population survival in the event of an attack....is probably infeasible." Accordingly, FEMA seemed to accept a limited-objective program recognizing full well that such a program "would fall substantially short of producing population protection capabilities for large-scale nuclear attack." In light of this position, why is FEMA moving toward exercises designed to test a population protection capabilities in just such large-scale nuclear attack situations?

Answer 7. The language cited is from page 18 of FEMA's July 1986 report to the Committees on Armed Services and was intended to convey that the realities of the Federal deficit make it infeasible for the United States to embark upon a large-scale program which would provide maximum chances for the survival of the United States population in case of attack.

The attack pattern in the exercise for Washington was an exercise artificially designed to facilitate exercise play and enhance learning about electromagnetic pulse in jurisdictions statewide. The attack pattern was not based on intelligence information convering the most likely targets in the State of Washington. However, given the number and importance of major military installations and key defense-related industries in the State of Washington, the number of weapons in the scenario is not unreasonable.

FEMA's exercise program is a well balanced activity which should be viewed in toto.

The exercise requirements in the 1987 Comprehensive Cooperative Agreement are not new. In the FY 1986 CCA, nine programs had separate exercise requirements. There was no uniformity in the

type of exercise required, the scenario(s) to be exercised, or the required frequency. Often, nothing more was required than "to exercise," simplify, unify, standardize, and clarify the FEMA exercise requirements in the FY 1987 CCA. Upon receipt of the State director's request, FEMA initiated a thorough analysis and developed the Exercise Annex.

The Exercise Annex clarifies and consolidates these program-specific requirements into a comprehensive, logical exercise program which enhances a jurisdiction's ability to better plan its overall emergency management activities.

The Annex was developed in an intergovernmental context by presenting the ideas and discussing the proposal with roughly 100 State and local officials. The overwhelming majority saw consolidating exercise requirements in a single annex as an improvement over the old array of program-specific exercise requirements.

FEMA's experience indicates that exercising is the most useful tool for ascertaining deficiencies in a jurisdiction's emergency operations plans and procedures and that identifying these deficiencies through exercise correlates well with improved actual response.

FEMA has kept the exercise requirements to a minimum. These requirements include:

- Conduct or participate in a full scale exercise once every 5 years;
- Conduct a functional exercise in each of the remaining 4 years and, depending on the size of the staff, conduct one or two tabletop exercises;
- Rotate exercise scenario among three general types of emergencies: natural disaster, technological hazards, and national security; and
- An actual disaster response of sufficient magnitude can be substituted for a functional or full-scale exercise.

Exercise assistance is available from FEMA in a variety of forms:

- The Emergency Management Institute (EMI) provides an Exercise Design Course. The train-the-trainers for this course is done on campus at Emmitsburg, Maryland; actual course delivery is done in the field by the States;
- An Exercise library with over 60 exercises on a broad range of hazards is available in each region;
- An Automated Exercise Generator allows States to tailor-make an exercise for local jurisdictions;
- Written guidance on exercises in the form of manuals and student aids is available on request, and
- Funding is provided to each State for an Exercise Assistance Officer to help local jurisdictions plan, train, and conduct exercises.

Questions Submitted by the Committee on Environment and Public Works

Question: The Senate Environment and Public Works Committee has held a number of hearings on the greenhouse effect, global climate change, and stratospheric ozone depletion. Testimony given at these hearings has shown that we are already committed to an unprecedented increase in surface temperature over the next few decades, with possible effects including a rise in global sea level, changes in ocean circulation, and changes in precipitation patterns.

We are deeply concerned by the prospect of such major and unparalleled changes in the composition of the atmosphere, and the implications for global climatic and environmental change. We are requesting information regarding your agency's efforts in these areas to assist us in understanding the existing and anticipated programs already addressing these issues.

Please describe how (a) the greenhouse effect, (b) climate change, and (c) stratospheric ozone depletion are addressed by your agency and incorporated into long-range planning and project development.

Answer: FEMA does not plan for or conduct research in any of these areas.

Question: Please indicate your current agency priorities and where, among these priorities, the problems of the greenhouse effect, global climate change, and stratospheric ozone depletion appear.

Answer: These areas are not addressed by any of FEMA's programs and hence, are not among the Agency's priorities.

Question: Does your agency have a major thrust or focus with respect to greenhouse, climate change, and stratospheric ozone issues? What are the priorities <u>within</u> your greenhouse, climate change, and stratospheric ozone programs? Are these multi-year efforts? When do you anticipate completing each of these projects?

Answer: FEMA has no major thrust with respect to any of these issues; therefore, it is not possible to identify priorities or completion dates.

Question: The scientific evidence demonstrates that we are already committed to a 2°C increase in global average temperature, and that the effects of global warming may be manifested as early as the next several decades. How have these findings been factored into your planning? How does the magnitude and timing of these changes affect your projects?

Answer: The finding of an increase in global temperatures has not been factored into FEMA's planning. It is not anticipated that the timing or the magnitude of this change would affect any FEMA projects.

Question: Please provide a detailed accounting on the fol-

lowing, including a breakdown by specific offices/laboratories and projects for each fiscal year.

(A) For the greenhouse effect
  (1) Expenditures in FY86.
  (2) Appropriations and expected expenditures in FY87.
  (3) Budget request in FY88.
(B) For the climate change
  (1) Expenditures in FY86.
  (2) Appropriations and expected expenditures in FY87.
  (3) Budget request in FY88.
(C) For stratospheric ozone depletion
  (1) Expenditures in FY86.
  (2) Appropriations and expected expenditures in FY87.
  (3) Budget request in FY88.

Answer: FEMA has no FY 1986 expenditures, FY 1987 appropriations or expected expenditures, or FY 1988 budget request for projects in any of these areas.

Question: Please describe how your agency's efforts are coordinated with those of other federal agencies and the scientific community.

Answer: In order to be aware of any trends in sea level change that may impact on the National Flood Insurance Program, FEMA liaises with the Environmental Protection Agency (EPA) to coordinate and monitor the progress of EPA's sea level rise studies. In addition to participating in EPA briefings and meetings, FEMA has provided EPA and its contractors with FEMA's coastal storm surge model and flood insurance study guidelines and specifications.

Question: What do you see as the five highest priority research needs in the area of greenhouse effect, global climate change, and stratospheric ozone depletion?

Answer: The greenhouse effect, global climatic change, and stratospheric ozone depletion are international environmental issues. Indeed, the 1984 report of the Conservation Foundation, citing the ozone depletion and carbon dioxide build-up, states, "An increasing number of issues that pose a threat to the United States environment can only be dealt with internationally." The Earth System Sciences Committee (ESSC) of the Advisory Council of the National Aeronautics and Space Administration has also recognized this fact and has developed a concept for the monitoring and analysis of environmental change on a global scale. FEMA recommends that research into these areas be conducted within the framework proposed by the ESSC. Further, FEMA recommends that the five following general areas be established as research and development priorities:

1. Development of effective monitoring systems and platforms for the collection of basic data to assess global environmental quality;

2. Development of a data base containing global information on environmental parameters;

3. Application of information systems technology for management of the global environment data set;

4. Research on numerical modeling for simulation and prediction of global environmental change; and,

5. Development of mechanisms for international cooperation in management of the earth's habitat.

Question: What data base was used to produce your floodplain maps? When were they last updated? Do you have plans to update your floodplain maps taking into account global sea level rises?

Answer: The data bases used to produce the flood plain maps are those that are available at the time the flood studies are performed. The flood plain maps currently in effect were prepared between the early 1970's and the present and the data bases have expanded during that period.

Data bases from the U.S. Army Corps of Engineers, U.S. Geological Survey, the National Ocean Survey, and the National Weather Service, are used, which consist of information collected from historical occurrences such as high water marks from floods, tidal gage data, and climatological studies of hurricanes. These data bases do not include projections for sea level rise. However, they do include corrections of historic flood levels to present sea level conditions. The flood plain maps prepared by FEMA must be based on existing, not future conditions, because of the requirement to establish actuarial insurance rates which reflect current risk conditions.

It is anticipated that, on the average, the coastal flood plain maps will be revised on 15-year intervals to keep the maps current with changing conditions and technology. When the flood plain maps are revised, flood levels are established using current sea levels. If the sea level has risen, then the revised maps will incorporate that change.

Question: What would a one foot change in global sea level do to coastal regions?

Answer: A one foot change in global sea level could be expected to impact coastal regions through increased erosion, barrier island migration, and the propagation of coastal storm surge and wave action further inland than previously experienced. The exact magnitude and extent of sea level rise impacts will depend on the geomorphic characteristics of a given locality. For low lying coastal regions, a rise of one foot vertically translates into an inland excursion of the mean waterline in hundreds or, possibly, thousands of feet. The increased sea level would also allow for increased saltwater intrusion into aquifers and corresponding loss of freshwater supplies in coastal areas. In coastal areas experiencing land subsidence, such as the Houston-Galveston area, delicate coastal wetland ecosystems and barrier islands will be most extensively exposed to increased coastal hazards.

Severe impacts can be expected for human-made shore protection and navigation structures. Most seriously, the Nation's transport infrastructure could suffer from impacts to the intercoastal waterway and harbors. For example, one of the Nation's most critical ports, New Orleans, presently protected from disastrous flooding by an extensive network of flood control projects, would be exposed to a greater risk of catastrophic loss due to erosion, loss of protective coastal wetlands and increased hurricane flood levels. The loss of structures on barrier islands, such as those in Ocean City, Maryland, and other coastal areas, will proceed at an increased rate, with little likelihood that human intervention can protect, for any significant length of time, threatened properties.

The Nation, as a whole, can expect greater losses from flooding, loss of coastal recreation areas, and wetland resources, and disruption of the transportation infrastructure.

SUBCOMMITTEE RECESS

The subcommittee will stand in recess until 10 a.m. Thursday, March 26, in the same room, SD–124, when we will take testimony from the Environmental Protection Agency. Thank you.

[Whereupon, at 11:43 a.m. Friday, March 20, the subcommitte was recessed to reconvene at 10 a.m. Thursday, March 26.]

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT-INDEPENDENT AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1988

THURSDAY, MARCH 26, 1987

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:05 a.m., in room SD–124, Dirksen Senate Office Building, Hon. Frank Lautenberg presiding.

Present: Senators Leahy, Lautenberg, Mikulski, Domenici, Grassley, and Nickles.

ENVIRONMENTAL PROTECTION AGENCY

STATEMENT OF LEE M. THOMAS, ADMINISTRATOR

ACCOMPANIED BY:

A. JAMES BARNES, DEPUTY ADMINISTRATOR
HOWARD M. MESSNER, ASSISTANT ADMINISTRATOR FOR ADMINISTRATION AND RESOURCES MANAGEMENT
RICHARD H. MAYS, ACTING ASSISTANT ADMINISTRATOR FOR ENFORCEMENT AND COMPLIANCE MONITORING
GERALD H. YAMADA, DEPUTY GENERAL COUNSEL
JOHN C. CAMPBELL, ACTING ASSISTANT ADMINISTRATOR FOR POLICY, PLANNING AND EVALUATION
JENNIFER MANSON WILSON, ASSISTANT ADMINISTRATOR FOR EXTERNAL AFFAIRS
JOHN C. MARTIN, INSPECTOR GENERAL
LAWRENCE J. JENSEN, ASSISTANT ADMINISTRATOR FOR WATER
J. WINSTON PORTER, ASSISTANT ADMINISTRATOR FOR SOLID WASTE AND EMERGENCY RESPONSE
J. CRAIG POTTER, ASSISTANT ADMINISTRATOR FOR AIR AND RADIATION
JOHN A. MOORE, ASSISTANT ADMINISTRATOR FOR PESTICIDES AND TOXIC SUBSTANCES
VAUN A. NEWILL, ASSISTANT ADMINISTRATOR FOR RESEARCH AND DEVELOPMENT
DAVID P. RYAN, COMPTROLLER

BUDGET REQUEST

Senator LAUTENBERG [presiding]. The subcommittee will come to order.

Today and tomorrow, we will hear from the Environmental Protection Agency for fiscal year 1988 as well as the supplemental request for the current fiscal year.

The agency is requesting $2.7 billion next year, a slight increase of $97 million, or 4 percent, over the current level. This includes $1.5 billion for operating programs and $1.2 billion for the Superfund and leaking underground storage tanks program.

It does not include $2 billion originally requested under construction grants, since the administration is currently reviewing this issue because of recent statutory changes to the Clean Water Act.

Lee Thomas, it's a pleasure to welcome you and your entourage—your colleagues——

[Laughter.]

OPENING REMARKS OF SENATOR LAUTENBERG

Senator LAUTENBERG. This is Senator Proxmire's statement, of course, so I read it with that caveat in mind.

I have had an opportunity to read your statement, so you may summarize your testimony with the understanding that your complete statement will be included in the hearing records.

Now I am going to make my statement at the same time, just before you begin, Lee, if you don't mind.

As I indicated, when you testified before the Environment Committee, the budget EPA submitted raises some serious questions, questions about Superfund, about underfunding the right-to-know program, about construction grants, and the Agency's operating programs, including reductions for the radon program.

Since the hearing, the Superfund and Environmental Oversight Committee, which I chair, held a hearing on the Texas Eastern Pipeline problem. In that hearing, EPA essentially admitted that it improperly handled the PCB problem, and that, in fact, it was behind the times, asleep at the wheel. But the problem is more than being asleep at the wheel.

I'm concerned that the Agency doesn't have enough resources, enough personnel, to man that engine, to make sure that the Texas Eastern mistake and other failures to protect our health and environment don't happen again. The administration's budget bolsters this concern.

What they have given us is an EPA operating budget that's essentially frozen at 1976 levels. Yet, since 1976, we've enacted many new tough laws, including the Clean Water Act Amendments, TSCA, RCRA, the Safe Drinking Water Act Amendments, and Superfund.

The budget fails in many respects. It obligates too little to Superfund this year and doesn't provide enough for next year.

It proposes a construction grants program out of line with the newly enacted Clean Water Amendments. It allows the operating budget to stagnate.

Now I reviewed this budget with one question in mind: Does EPA have the resources to do the job? I see the answer as being no, and I'm committed to working with the subcommittee to improve this situation and to ensure that EPA can meet its responsibilities. The health of our citizens and the safety of our environment depends on this.

Mr. Thomas, I ask you to proceed with your statement in whatever form you'd like. You know, again, you can submit the full statement, Lee. If you'd like to summarize, we welcome that.

STATEMENT HIGHLIGHTED

Mr. THOMAS. Senator, I will summarize my statement. I understand the full statement is in the record. I'm not going to use the charts that I had anticipated using because you and I have discussed these charts in the past when the oversight committee had its review of our budget.

I would just make a few comments before I turn to you and members of the committee for questions. I have with me members of my staff that you probably know, whom you've had an opportunity to question in many hearings; the Assistant Administrators of the Agency and the Deputy Administrator of the Agency. We are prepared to respond to all the questions that the committee members may have.

In response to your opening statement, I believe this is a strong budget and it provides adequate resources for the Agency. Clearly, we have to take into account priorities within the Agency, but when the President submits the budget, we also have to look at the overall federal government budget.

Within those constraints, the budget does provide the resources we need. Priorities within the budget reflect the emphasis that we feel should be placed on new programs that have been recently reauthorized or authorized by Congress, as well as maintaining strength in ongoing base programs.

BUDGET'S THREE PRINCIPAL CATEGORIES

If you look at the various components of the Agency's budget, you find that it's broken down into three large categories: The operating budget, the Superfund budget, and the construction grants budget.

The Construction Grants Program request is being reviewed in the context of an overall review of what our budget requirements are for the recently reauthorized Clean Water Act. As far as whether the administration will submit a supplemental request and for how much, that is something that we hope to come to grips with in the next couple of weeks.

As far as the Superfund budget is concerned, as you know from my previous discussions, we prepared a 2-year funding program to bring the Superfund program not only back up to speed, but to accelerate it to reflect the new responsibilities that you gave us in the Superfund reauthorization. We feel it brings it back strong. We laid out the fiscal year 1987 and fiscal year 1988 budget requests with that in mind, to bring it back strong and get the program moving again.

As far as the operating budget is concerned, we feel it clearly reflects the priorities as set by Congress and the administration. The reauthorized Safe Drinking Water Act is clearly a priority in our operating budget. Acid rain, and the research issues associated with it, are also reflected as priorities. Issues like stratospheric ozone depletion, radon, and others that we've discussed over the last several years as new concerns, are all reflected in that operating budget. There is a continued commitment to the state partnership that's so essential to carrying out ongoing as well as emerging programs under the authorities that we have.

So, overall, we feel the budget submission, which you have, is a strong budget submission; it will give us the resources that we need to move forward with the priorities which Congress and EPA have set up over the last several years.

Thank you, Mr. Chairman, and I'll be pleased to answer the questions you have.

[The statement follows:]

STATEMENT OF LEE M. THOMAS

Mr. Chairman and Members of the Committee: I appreciate this opportunity to discuss the President's 1988 Budget Request for the Environmental Protection Agency -- a budget that provides growth for the Agency to continue addressing the nation's most critical environmental problems. With me today are the Deputy Administrator, A. James Barnes, and the Assistant Administrators who manage our programs.

We believe this budget will provide the Agency with the necessary resources to successfully achieve our statutory objectives -- to protect human health and the environment. Our 1988 request provides strong support for new requirements and maintains our base programs. Specifically, we have built the President's 1988 Budget around three key areas:

- o A major 2-year request for Superfund to allow us to move ahead quickly to meet the requirements of the new law.
- o Implementation of the Special Envoys' Report on Acid Rain.
- o Continued emphasis on the Safe Drinking Water Act, which was signed by the President last year.

We have also increased funding for State Grants in 1988 in order to continue the strong State-Federal Partnership that is crucial to achieving our goals.

Overview

Our proposed 1988 budget will allow us to bring about substantial environmental progress over the next several years. The President is requesting almost $2.7 billion supported by 14,323 workyears. The request includes $1.5 billion and 11,522 workyears for our Operating Programs. We are also requesting 2,801 workyears and $1.2 billion for the Superfund and Leaking Underground Storage Tank programs. By using previously appropriated funds, we will be conducting a total Superfund and LUST Program in excess of $1.6 billion in 1988. We will spend more in 1988 alone than we did during the first 5 years of this program. The Administration will be reevaluating its request of $2 billion for Construction Grants in light of the recent reauthorization of the Clean Water Act.

Excluding Construction Grants, our 1988 request is an increase of $97 million and 158 workyears from the 1987 current estimate. This is an increase of 4 percent in dollars and 1 percent in personnel.

The Administration is also proposing some changes to the 1987 budget. These proposed changes include a transfer of $22.4 million from the Research and Development and Abatement, Control, and Compliance appropriations to the Salaries and Expenses appropriation in order to pay for additional Agency costs attributable

to the Federal payraise and implementation of the new Federal Employees Retirement System. In addition, the Administration is proposing a $47.5 million rescission to the Abatement, Control and Compliance appropriation for the asbestos-in-schools program and a $2.5 million rescission to the Buildings and Facilities appropriation.

I will now discuss in more detail some key issues that are central to the President's proposed 1988 budget for EPA.

Major Growth in the Superfund Program

One of the most critical environmental problems currently facing the nation is uncontrolled hazardous waste sites. The newly reauthorized Superfund statute greatly expands Federal and State program authorities. Our 1987 plan and the 1988 request will enable the Superfund program to regain its momentum after the delays and subsequent funding problems of reauthorization.

Despite the Superfund program slowdown, we have made notable progress in cleaning up some of the nation's most dangerous hazardous waste sites. Efforts to reduce or eliminate hazardous waste have been targeted towards those sites which present the greatest threat to public health. As of October 1986, the Superfund Program completed over 700 removal actions. We began remedial studies at over 400 sites and reached settlement agreements with responsible parties at 373 sites worth $620 million.

In 1987 and 1988, we expect to increase outputs substantially. Between 1987 and 1988, over $2.7 billion dollars will be made available for the Superfund program. Including carryover funding from earlier years, our 1988 plan provides almost $1.6 billion and 2,716 workyears for Superfund. This is $456 million and 300 workyears higher than the 1987 current estimate.

The 1988 Superfund Program will quickly move forward with an expanded site design and construction program, increased emergency clean-up actions, strengthened Federal enforcement activities, and an expanded research and development program. EPA will initiate 60 remedial designs as well as 50 constructions. Responsible parties and other Federal agencies will initiate another 51 designs and 31 constructions. This represents a 46 percent increase for designs and nearly a 60 percent increase for constructions over the 1987 levels. The budget request also provides increased resources for other Federal agencies to enable them to meet their requirements under the new Superfund legislation.

Implementation of Special Envoys' Report on Acid Rain

The Special Envoys' Report sets out a course of action to deal with acid rain. The report recommends a 5-year, $5 billion demonstration program for clean coal technologies, calls for cooperative activities between Canada and the United States, and places an increased emphasis on research related to transboundary acid rain issues.

EPA will play a major role in implementing the Envoys' recommendations. For the clean coal demonstration program we will be working closely with the Department of Energy, which has the lead role in this area. EPA will maintain a continuing information exchange with our Canadian counterparts on research and policy issues. In addition, EPA will play a major role in research essential to resolving transboundary acid rain issues.

To support implementation of the Special Envoys' Report On Acid Rain, EPA will devote $55 million to understanding the causes and effects of acid rain. Throughout the Federal government, acid rain research will total $86 million in 1988. EPA will also continue research and demonstrations on the LIMB technology, a potentially cost-effective technology to control acid rain.

Safe Drinking Water

The 1988 budget underscores the Administration's commitment to providing the nation with a clean, safe supply of drinking water. The Safe Drinking Water Act Amendments of 1986 expand EPA's responsibilities in ensuring that the nation's drinking water supplies are safe from contamination. The legislation requires EPA to regulate additional potential contaminants and develop a program to monitor State and local government compliance with public water supply standards.

In order to carry out these activities, the 1988 budget provides 753 workyears and $112.3 million for the Safe Drinking Water Program, including $8 million for a new Wellhead Protection grant. In total, the Safe Drinking Water Program will have grown almost 30 percent since 1986.

Research and Development

EPA's 1988 Research program will continue to provide the necessary support for the development and implementation of regulations required by statute as well as to expand into areas where new environmental problems have been identified.

The President's Budget provides a total Research and Development program of $354.3 million and 1,844 workyears, including Superfund and Leaking Underground Storage Tank Research as well as our work on Acid Rain. The Superfund Research Program will be expanded in 1988 and will focus on evaluating remedial technologies to improve site clean-ups and provide additional health risk assessment support for clean-up and enforcement actions.

Maintaining Grant Assistance Programs

An effective partnership between EPA and the States is key to successful environmental management. The increasing number of EPA programs delegated to the States emphasizes the need to implement a consistent policy on EPA/State relations. EPA's 1988 Budget allocates a total of $296 million for grant assistance programs. This represents an increase of almost $10 million over 1987.

Within this total, $8.0 million is proposed for the new Wellhead Protection Grant Program. Grants for Pesticides Certification and Training are also increased by $1.5 million. These increases will enable the States to meet the new requirements under the new Safe Drinking Water Act Amendments as well as make necessary improvements to their Pesticides programs.

All of our other continuing grant programs remain stable at their 1987 levels.

Conclusion

These are some of the highlights from our 1988 Budget Request. I believe this budget reflects a continuing Administration commitment to the environment, especially in times of government-wide budget reductions. This is a creditable budget -- one that will further strengthen EPA's ability to protect human health and the environment.

I will be happy to answer any questions at this time.

ADEQUATE EPA FUNDING

Senator LAUTENBERG. Do you think it's fair to say that there is some disagreement on whether or not you have the resources? I find it difficult to try to persuade you, I have, as I've indicated to you in the past, admiration for your skills and your commitment to the programs you have to manage. I think at times it's in conflict with the assignment you get from the administration. And I don't know how much we can twist your arm, but I would tell you that there's enormous concern out there, in the states and the communities and within the Congress, about whether the programs that we work so hard to enact are, in fact, going to get the attention we'd like to see.

Before I proceed with my questions, I would ask any of my colleagues if they have an opening statement.

Senator Grassley, you were here before.

Senator GRASSLEY. Mr. Chairman, I don't, but I hope I can ask at least three or four questions before 10:30.

Senator LAUTENBERG. That's likely, depending on the pace that you ask the questions. [Laughter.]

Senator GRASSLEY. And I'm not fast, I'll admit.

Senator LAUTENBERG. It depends on how much time I give you.

Senator Nickles, did you have an opening statement?

Senator NICKLES. Mr. Chairman, I don't, but I might just ask the Administrator if he would make some comments—and I'm sure he has in the statement which I haven't reviewed yet—concerning the possibilities of acid rain and the President's speech or his meeting with Prime Minister Mulroney, and whether that's in the budget proposal that you have before us right now.

Thank you, Mr. Chairman.

TEXAS EASTERN PIPELINE

Senator LAUTENBERG. Thank you very much, Senator.

I'd like to talk for a moment about the Texas Eastern Pipeline problem. The hearing we held last week showed some real problems in monitoring and enforcement by EPA's toxic substance program. Now, I don't want to go through the list of disturbing admissions your staff made at the meeting. And I must say that I was surprised and pleased at the candor of the response. I think that's always the best way to solve problems, to approach them honestly. If something slips through the cracks, then we ought to find out how to fill those cracks, but I think if we start out understanding that there were some mistakes made, it's a level field that we start from. With that in mind, I want to ask a couple of questions.

In light of the Texas Eastern example, what do we conclude about the toxic substances program? Does it have sufficient resources to function with? Is it a question of resources?

Mr. THOMAS. Senator, first, let me make an overall statement, and then I'll talk specifically about resources related to PCB's.

Overall, I think that, as far as the Texas Eastern Pipeline case is concerned, there were mistakes made by EPA. We were addressing that case, and had been addressing PCB's as far as pipelines are concerned, for a long time, and had been addressing them aggressively. As a matter of fact, EPA had been addressing them successfully in many cases by monitoring pipelines around the country to ensure that they were taking care of the PCB's which were a part of their operation.

As far as that case is concerned, we dealt with it as an enforcement case and did not deal with it aggressively enough when we were reviewing the case. When it came to the attention of senior management, though, we did two things. First, by means of an enforcement action, we moved quickly with the substantial resources we have in the Agency to ensure that there were no public health or environmental concerns that were not being addressed either by us or by the company.

Second, we looked to see if there were lessons to be learned from the way we handled that case, so that we could ensure that we don't make those kind of mistakes in the future. We're doing both of those things simultaneously.

I must say, though, that we've got substantial resources to deal with hazardous waste, and PCB's in this case clearly were a hazardous waste. When we finish hiring, we will soon have over 3,000 personnel to deal with hazardous waste just within the Superfund Program. That includes our emergency response personnel and our people throughout our regions, enforcement as well as program support. We have moved aggressively with the states to make sure that every one of the 62 potential sites involved in that case are, in fact, being managed properly, along with the thousands of other sites that we manage around the country.

So, I do feel that we have the resources to deal with the hazardous waste issue, particularly when you look at the resource request we have in this budget.

Senator LAUTENBERG. Does that then mean we will not see a repeat of the problems that created the Texas Eastern scenario?

Mr. THOMAS. My intention is that you will not. I must say, though, with the caveat when managing any agency, that I can't guarantee that there will be no mistakes.

SUPERFUND BUDGET

Senator LAUTENBERG. You can't guarantee it. But I hope, Lee, that you will pursue setting the staffing and the other resources you need, as aggressively as you can.

I want to just explore the Superfund budget. With over 900 sites on the NPL, with the vigorous new requirements of the law, I think that the budget misses the mark. We talk about ramping up. And even in 1988, the second year of the program, you're still not at the $1.7 billion level. Yet that's the average rate if we're going to use the funds, and we obviously want them used efficiently. That is indicated in the legislation.

In the Environment Committee hearing you indicated that the program over the next 5 years could cost as much as $9 billion. And we discussed in that hearing the necessity of using the authorized general revenues to meet the funding needs.

Now, if you're only budgeting $2.7 billion over the next 2 years, I take it that in the final 3 years you'll be projecting an increase for the annual expenditure that's fairly substantial. To hit the $9 billion level it looks like you're talking about $2 billion a year for the final 3 years of the program; is that correct?

Mr. THOMAS. Senator, we discussed two factors in the authorizing committee hearing: First, we're ramping the program up substantially from a $400 million level last year to a $1.2 billion level this year, to a $1.6 billion level next year, driven largely by the remedial pipeline; second, new starts are moving back up quickly on site work. For the first several years of the program we're increasing starts ahead of the pace that was anticipated when the program was reauthorized.

However, as I indicated before, we do not anticipate that at the level we're running we're going to need the full $9 billion over the 5-year period. However, we might. I said I thought that $7.5 to $9.5 billion was probably the range which would be needed.

If we need only $7.5 billion to deal with the problem, then we would not ask for the use of general funds as a part of the appropriation, but would rely on the tax part of the appropriations which will generate about that much money. So, that's the way we've set our priorities as far as the request of funds is concerned. If we need more than $7.5 billion, if we need $9.5 billion, I think you will see the last several years of this program go up to the level you're talking about. At this point, I don't anticipate it will, but it's very early to tell, particularly when you look at the tremendous range of costs for these individual sites. I think the next 2 years will give us a much better feel for how much the sites are going to cost.

Senator LAUTENBERG. So, we're not going through the debate that we went through to develop the law, because I have a feeling that we're engaged a little bit in that dialog.

Mr. THOMAS. No, not at all. We anticipate exceeding the pace that's incorporated in the Superfund program. We anticipate going beyond the number of engineering studies at sites that were incorporated in the act; going beyond the number of designs; going beyond the number of remedial actions. We're not redebating that pace.

Senator LAUTENBERG. Because it's going to take some time to get that machinery moving and unless we start it very early, we're going to wind up 5 years from now, 4 years from now, not achieving our goal.

Mr. THOMAS. We have started it aggressively. It has moved back up quickly.

TITLE III RIGHT-TO-KNOW FUNDING

Senator LAUTENBERG. I want to discuss the right-to-know request. I wrote you on February 11 asking numerous specific questions about right-to-know funding. Unfortunately, I still haven't received a response; that was February 11. And I've had to rely on unofficial information provided by your staff. They provided us with documents that give some indication of title III activities by function. These documents indicate that your 1988 request assumes only 11 FTE's for enforcement. That's probably about $581,000 for enforcement, assuming $50,000 for each FTE. This figure seems to assume that it won't take much to assure compliance with the new law. Is that unrealistic, such a low amount for enforcing a law as comprehensive as this one is?

Mr. THOMAS. We're still in the process of fully comprehending what's going to be required for enforcement of this law. Right now, we're in the process of implementing the front end of this new law which, as you say, is very comprehensive. It will have substantial impact on communities as well as industries in this country.

We've gone forward in a very difficult situation, difficult because of the financing restrictions that we have had. We have begun to implement the provisions of title III including the determination of which chemicals reports would be required; the promulgation of a proposal of a form to report that information; and the development of a substantial chemical emergency preparedness effort to provide assistance to states and localities.

There's tremendous apprehension on the part of local government as to what they're going to have to do in implementing title III. We're trying to spend a considerable amount of time in communication with state and local governments regarding our plans for going forward with title III.

Consistent with the spirit of title III, as envisioned and as laid out in the authorization, a substantial amount of the enforcement is going to be at a state and local level. Some enforcement is going to be at the federal level, as reflected in this budget request. As far as enforement is concerned, defining the appropriate roles is something that is still going to take us awhile, mainly because of the newness of title III and the

work involved to determine exactly how its provisions are going to be implemented.

FULL-TIME EQUIVALENTS FOR ENFORCEMENT

Senator LAUTENBERG. Mr. Chairman, I'd like to just ask one very quick question, and that relates to this. How many full-time equivalents are you going to need to do the enforcement job in 1988 that we're talking about here, based even on the preliminary knowledge or the reviews that you have at this point?

Mr. THOMAS. The total FTE for title III in the fiscal year 1988 request, is about 85. I'll have to verify that.

I don't have FTE's broken out for enforcement. I can supply that to you.

Senator LAUTENBERG. If you would submit that to us, including the number of facilities that you plan to cover.

[The information follows:]

NUMBER OF FACILITIES

In 1988 we anticipate inspecting 800 facilities for compliance with title III of the Superfund Amendments and Reauthorization Act. These inspections will be done concurrently while inspecting for compliance with section 5 and section 8 of the Toxic Substances Control Act. The resources for these inspections, 8.2 work-years, are budgeted under the Toxic Substances Enforcement Program. Also, 11 work-years are requested for 1988 title III enforcement case development for infractions detected by the inspections.

Mr. THOMAS. Mr. Chairman, as you know, one of the real issues we've got right now is how to fund title III in fiscal year 1987. We don't have anything in our budget to fund it. We requested funding out of the Superfund allocation.

We have worked through the issue with the House Appropriations Committee, where there was strong opposition to our using those Superfund resources to fund title III in fiscal year 1987. We have also worked through that issue with the House Appropriations subcommittee. Their markup for a fiscal year 1987 supplemental appropriations bill has indicated agreement with our using Superfund resources this year.

If we could get an indication from Congress that we can do so, it would help substantially in moving forward title III's implementation.

For fiscal year 1988, I personally feel that we should use the resources from general fund appropriations and not Superfund appropriations. The request that we've made for fiscal year 1988 is for 83 FTE and $19 million.

Senator LAUTENBERG. Thank you, Mr. Chairman.

Senator LEAHY. Senator Grassley?

REPORT ON UNLEADED GASOLINE IN FARM MACHINERY

Senator GRASSLEY. Thank you, Mr. Chairman.

Mr. Thomas, my first question deals with the study that was mandated on unleaded gasoline in the farm bill of 1985. What is the status of that report?

Mr. THOMAS. That's the study of unleaded gasoline's effects on heavy farm machinery as a part of the phasedown that we initiated on leaded gasoline a couple of years ago.

We are at the very final stages of completing that study report. As a matter of fact, I'm anticipating that possibly within the next week to 2 weeks we are going to issue that report.

We had preliminary briefings with committee staff in January to give them tentative conclusions.

It was jointly conducted with the Department of Agriculture, so I would anticipate that within about 2 weeks, the final report is going to come out.

Senator GRASSLEY. Would you ask your staff to contact my staff and then give me an exact date on when we expect that report out?

Mr. THOMAS. Yes, sir; I'd be glad to.

Senator GRASSLEY. Because I'd like to have an exact date, although I don't consider within the next 2 weeks to be causing any problems.

Mr. THOMAS. We'll do that immediately, sir.

BAN ON LEADED GASOLINE

Senator GRASSLEY. Also in regard to that general subject, I'd like to know when you expect to make a decision regarding leaded gasoline and informing Congress on whether or not it ought to be banned.

Mr. THOMAS. The issue, Senator, was the one that we proposed a year and a half ago when we phased down from 1.1 grams to 0.1 grams of lead per gallon of leaded gasoline, and we asked for comment on whether we should go beyond that, whether we should ban it totally.

We don't have a schedule for taking that next step any time within the next year. One of the things we wanted to do was conclude this study. Another thing we wanted to do was to look far more closely at the possibility of the development of additives, if, in fact, all lead was banned from gasoline.

I can give you, though, along with the specific date on when that study is coming out, a tentative schedule for when and if the decision on banning leaded gasoline will be made.

Senator GRASSLEY. OK.

[The information follows:]

FARM STUDY AND LEAD BAN

The study which the Agency is conducting to evaluate the effect of lead in gasoline on farm equipment, required under the Food Security Act of 1985, involves two phases. The first phase is a joint study between the Environmental Protection Agency [EPA] and the U.S. Department of Agriculture [USDA]. It focuses on testing and evaluation of farm equipment on various levels of lead in gasoline. This phase is now complete. The Agency must now conduct public hearings on the study and submit a final report to the President and the Congress which includes our findings and recommendations. This final report is due to the President and Congress 6 months after publication of the initial study. The initial study will be published in mid-April (approximately April 16); the final report will be completed in mid-October. The initial study will analyze not only the effect of various levels of lead in gasoline on agricultural equipment, but also the impact of nonlead additives on farm equipment. During the second phase of the study, the Agency will continue to develop and analyze the data in the

study and focus on the effect of nonlead additives on farm equipment. We anticipate additional data will be provided during the comment period on the nonlead additives.

It is important to note that the Agency has not yet determined that it should ban leaded gasoline and is unlikely to do so within the next year. If it does decide to ban this product, this will be done in an action separate from this farm study and will be done in the broader context of the overall health effects and potential damage to all engines which were designed for leaded gasoline. Obviously, the effect on farm equipment is an important consideration in this decision. Further, if we decide to ban lead in gasoline, we would inform Congress and the public with adequate leadtime to deal with any problems which would arise.

Senator GRASSLEY. The importance of that is this, sir, that with the industry not knowing what EPA might do as a final determinant, they could—and not wanting to be caught up short, if they don't know something by July—then they might have a tendency to feel that that January 1, 1988, deadline is firm and to gear up for it and to eliminate the use of lead in gasoline, and then how that impacts upon——

[Senator Leahy and Senator Grassley confer.]

Senator GRASSLEY [presiding]. Because we have reason to believe that there's some harm, not only for farmers, but for voters, RV enthusiasts, and all that. Even some newer trucks; maybe there's a situation.

And we had this report in the Des Moines Register by the National Institute that found that the use of unleaded gasoline severely damages engines in older tractors, and then we have speculation beyond that.

So it's very important that we would get an early decision.

Now I think you suggested in your answer to me that there might not be a decision. So is that a signal, then, that any ban instituted as of January 1 is no longer of any concern to the petroleum industry and to the farmers who have to use leaded gasoline?

Mr. THOMAS. Senator, when we went forward with our phasedown, we indicated that we would look at a decision on whether to ban all lead from gasoline. We talked about January 1988. It was only a proposal to ban lead as early as January 1988.

I do not feel there is any way we're going to make that date.

Senator GRASSLEY. So then there isn't anything that you can anticipate today that would cause the petroleum industry to make a knee-jerk action that they'd better be ready by January 1?

Mr. THOMAS. No.

Senator GRASSLEY. So that we don't have any concern that by January 1 there won't be the availability of leaded gasoline.

Mr. THOMAS. We do not anticipate taking action that would force that. Now the petroleum industry themselves, when they look at the economics of using lead for octane at the levels we've got versus other ways of increasing octane, like additional refining, may make those decisions themselves, to get out of the use of lead, when they look at the market needs for leaded gasoline.

But I can't anticipate that. There's nothing that I know of in our program that would force them out of the use of lead because of that January 1988 date——

DEADLINE FOR COMPLIANCE WITH CLEAN WATER ACT

Senator GRASSLEY. All right. Mr. Thomas, my last question deals with the deadline for communities in any state—but I'm particularly thinking of 200 communities in my state that have not come in compliance with the Clean Water Act and, I understand, will need to spend about $950 million to meet the target dates of 1988. Do you think that this deadline is realistic for our communities?

Mr. THOMAS. Senator, I believe it is, and, as Congress indicated when it reauthorized the Clean Water Act a couple of months ago, they do, too. And they clearly defined the fact that the July 1988 date was one they intended for us to enforce. We now have the majority of major communities either on a schedule to meet that date or on an agreed-upon schedule, which the court has sanctioned as a consent order, if they are going beyond that date.

We first worked on communities with major facilities, and then began working through the communities with minor facilities.

Senator GRASSLEY. Don't forget, though, one of the factors in my question was the cost of it and the availability of federal funding and the fact that the federal funding is much less now than it was 10 years ago, at least the allotment that goes to my state, and probably some leveling off in the future, I would guess. And that's really what my question is in regard to, not do we want clean water or don't we, because we do, and if the deadlines could be met—be met—and when we started out with these deadlines originally, it was a federal mandate with a cost sharing that was very realistic at the time.

Now with the federal cost-share down, with the federal regulations as stringent as ever, you know, the economics of that.

Mr. THOMAS. But, Senator, the Congress has made it abundantly clear that there's not a connection between that date and the availability of federal funds. The federal funds won't pay for but a fraction of the requirements that communities have to meet by that date.

Senator GRASSLEY. Well, but maybe the decision was made on at least a feeling that the federal funding would continue. And here we are at a time where it looks like federal funding will be diminished even more.

Mr. THOMAS. Well, the reauthorization was to continue the federal funding at about the level of recent years. Our budget submission is slightly less than that. However, it appears, at least based on what the House just proposed for 1987, that Congress wants to continue it at level funding.

But the intention, at least as I see it, in reauthorization of the Clean Water Act by Congress, is that they didn't tie those two things together.

Senator GRASSLEY. You know, we get situations where a community is threatened with being taken to court, and then the settlement, more or less, is that we'll grant you a further extension, but we're going to penalize you for that extension. So you have, you know, one economic problem of a small community meeting the deadline, and then just simply being compounded by a penalty that probably can't be afforded either.

Let me ask Mr. Leahy's staff. He wanted me to recess this.

Do you want me to——

Senator NICKLES. Well, let me put in a question before we do that.

Senator GRASSLEY. OK, OK; then, you're supposed to recess when you're done.

Senator NICKLES. I'd be happy to.

Senator GRASSLEY. If he's not back.

TOTAL EPA BUDGET REQUEST

Senator NICKLES [presiding]. Mr. Thomas, I apologize for the fact that we have two votes at 10:30, which are going to require a recess, and I'm not sure how many of us can come back. I know three of us are on the Budget Committee and we have a meeting that starts at 11 as well, so we have a little bit of a problem.

I also apologize. I wanted to hear your statement, and we don't have time. So I'll read your statement.

Just quickly, your total budget request for the next fiscal year is how much?

Mr. THOMAS. Our total budget request for fiscal year 1988 is about $4.5 billion when you look at the Construction Grant Program.

Senator NICKLES. That includes the construction grant?

Mr. THOMAS. Yes.

Senator NICKLES. About $4.5 billion.

Mr. THOMAS. Yes; it also includes Superfund.

Senator NICKLES. Do you have a supplemental as well for 1987? Is there a request for——

Mr. THOMAS. We are currently in the process of reviewing our supplemental budget needs, but we have not submitted a request from the administration. It is currently being discussed between EPA and OMB.

Senator NICKLES. I understand.

Do you have money in that $4.5 billion, or in the future years, for acid rain?

Mr. THOMAS. We do; we have substantial money. The overall research program by EPA for acid rain is nearly $60 million. The Clean Coal Technology Program that EPA manages is a small program within that, about $15 million, including a proposed transfer of funds from the Department of Energy of about $7 million.

So both components of the acid rain effort that the administration has underway have been incorporated in the EPA budget.

EXPERIMENTAL USE PERMIT FOR CRT

Senator NICKLES. I'm just going to go over a couple things very quickly. We've contacted your Agency concerning an experimental use permit for CRT, and you contacted us back and said you would make a decision by July 5.

If that answer could be given to us, just by a letter from John Moore, if you could accelerate that as much as possible, because we're losing money on a day-by-day basis. If that permit could be granted, it would

certainly help a number of our constituents, and I would appreciate that.

Mr. THOMAS. We'll look at that, Senator, and we will get back to you and see if there's any way that date could be accelerated.

Senator NICKLES. I appreciate that.

SPLIT-FLOW PROJECT

Also we've wrestled, as you're well aware of, with the split-flow project from the city of Fayetteville into the Illinois River and into the state of Oklahoma.

I haven't contacted you about that in the last 60 days, but let me just reemphasize our concern in the state concerning that discharge and what it would do to, basically, our best scenic attraction in northeastern Oklahoma, that river. There is still a tremendous concern about that discharge going from the Fayetteville split into the state of Oklahoma.

I would hope that we would work with the EPA to keep that river as clean as possible and not see it further polluted. So I make that statement.

I've got 4 minutes to go vote, so I'm going to recess the hearing. I'm assuming that Chairman Leahy will return.

Mr. THOMAS. Thank you, sir.

[A brief recess was taken.]

Senator LEAHY [presiding]. We can go back into session now that you've all had a nice break of all of a minute and a half. The next rollcall vote will follow immediately, and it will be a 10-minute rollcall, so that it's probably going to seem like a floating crapgame up here. That's a parliamentary term referring to the most deliberative body in the world. [Laughter.]

Mr. Thomas, it's good to see you again. You are, you understand, one of the best known people in the state of Vermont, because every time they talk about acid rain, they show photos of you climbing Camel's Hump, and you look very good, with the rest of us kind of straggling along behind you, as you go charging up the mountain. [Laughter.]

ACID RAIN

For those of you who are not intimately familiar with the topography of Vermont, I would note that Camel's Hump is our second highest mountain.

The question I have is on acid rain. The President is proposing to spend $2.5 billion over the next 5 years to demonstrate new clean coal technologies. The White House continues to oppose all legislation that proposes to control the pollution that causes acid rain, and acid rain is continuing to cause serious economic and natural resource damage in my own home state.

And I have to ask why another research program is necessary? Can't we reduce sulfur dioxide emissions dramatically from coal-fired powerplants, using a combination of existing technology and fuel switching?

Mr. THOMAS. Senator, you can. You can use flue gas desulfurization, which is basically the technology that's required on new plants now. Both the capital investment and the operating costs of those plants are very high. They're wet scrubbers and they remove sulfur dioxide.

The Clean Coal Technology Program, a small part of which we manage in EPA, is very promising as far as new technology that would be more efficient and possibly more effective in some cases, for removing both sulfur dioxide and nitrogen oxides.

Senator LEAHY. Fuel switching, though, could make a dramatic change, could it not?

Mr. THOMAS. There's no question that fuel switching is probably the quickest way to reduce sulfur dioxide. If you want to go from a 4-pound coal to a 1-pound coal or whatever it may be, you can have a dramatic impact on emissions from existing sources. Although for new sources, because of the percent reduction requirements in the Clean Air Act, you may well have to put on the same technology to reduce the sulfur dioxide in that lower coal, so your cost may be just as high.

Senator LEAHY. In West Germany, their law is that every large coal-fired plant has to have scrubbers by 1988; is that correct?

Mr. THOMAS. I'm not positive about that date. I know West Germany, particularly on nitrogen oxides, is moving toward an extensive scrubbing process. It's different from the United States, because of their concerns about that particular pollutant.

Senator LEAHY. But they're easy—I mean, they're willing to use current technology?

Mr. THOMAS. They are using current technology as far as retrofit is concerned. That's correct. But they're also very interested, just as many other countries are, in the development of new technology as well.

Senator LEAHY. I understand that, but we're talking about $2.5 billion really in research. That's—your operating budget is what, about half that?

Mr. THOMAS. Our total annual operating budget, if you take out Superfund and construction grants, is about half of that.

Senator LEAHY. Yes; and most of this $2.5 billion is going to go through DOE?

Mr. THOMAS. Most of it is through the DOE Clean Coal Program, which, as you know, was authorized and actually begun long before the Special Envoys' report. It's now been narrowed because of the Envoys' criteria. The $2.5 billion is largely to look at retrofit, and it's looking at replication potential between plants.

I wouldn't call it so much a research program as I would call it a technology development program. I think that research is a part of it, but a considerable amount of it is to move the technology to a commercial phase quickly, so that it will be available, and particularly available for retrofit.

Senator LEAHY. But still, $2.5 billion, wouldn't you like a little bit of that money into your own operating budget? We're not funding—or we're not appropriating or you're not asking us to appropriate any of

the general revenues that Congress authorized for Superfund in fiscal year 1988, are you?

Mr. THOMAS. No; we're not.

Senator LEAHY. Well, wouldn't it be good to get some of this $2.5 billion in there?

Mr. THOMAS. Senator, I feel that the request we have made for fiscal year 1988 for Superfund meets the demands of the program. I don't feel we need additional funding for Superfund.

I personally feel that the commitment to the $2.5 billion for clean coal technology is a sound commitment, that the development of that technology will have long-range implications for both energy security and environmental objectives.

RELATIONS WITH CANADA ON ACID RAIN

Senator LEAHY. Let me see if I understand this. I remember the President's last meeting in Canada, you and I had a long discussion about the acid rain issue, and I know Prime Minister Mulroney had it as a major factor, and I know you had done a great deal of work within the administration preparing our own response on that.

What's going to happen now? I mean, we're going to go up there and we're going to tell the Canadians, "We've got this $2.5 billion research or new technology development," whichever, and it would probably depend upon how they feel about it, whether they'll call it research or new technology development. And we're going to tell them, "Yes, we've got $2.5 billion in this," and they're going to say, "Wait a minute. Your acid rain is killing our forests, it's killing our lakes, it's killing our rivers. What are you doing to stop it? Don't tell us what you're thinking about in the future. What are you doing to stop it right today?"

How do you answer that? I mean, suppose the Prime Minister turns to you and says, "OK, Lee, old buddy, this stuff is coming down over there. I've got all kinds of problems on my hands up here in Canada. The U.S. Senate has just passed another Canadian-bashing amendment," which we're going to do in about 15, 20 minutes, "and they're asking me about some of the peccadilloes of some of my ministers, and I think it's about time to get on the U.S. case. I'm told that I'm just running almost a client state of the United States, and your cruise missiles and everything else. Well, I'll tell you one thing that unites us all. We don't like the acid rain. Now what the hell are you guys going to do about it?"

What do you answer?

Mr. THOMAS. Senator, I think the answer is that we're doing a heck of a lot in the United States to control sulfur dioxide and nitrogen oxides. We're spending billions of dollars, as you know, and have spent it successfully in bringing those emissions down.

We're going forward to fulfill the commitments that the envoys recommended to both the Prime Minister and the President last year. The $2.5 billion is part of it. But we are also responding to the other components of that Envoys' report.

There's no question that there's a disagreement on the science, as far as some people in Canada and some people in the administration are concerned. And there is disagreement on what kinds of controls are needed and how soon they are needed. We just disagree with the fact that additional controls are needed now to bring down those sulfur dioxide emissions.

STAFFORD-MITCHELL ACID RAIN BILL

Senator LEAHY. Well, if he asked you, "Is the administration still opposing Senator Stafford's and Senator Mitchell's acid rain legislation," what would be your answer?

Mr. THOMAS. We are.

Senator LEAHY. I think that's a mistake. I really do, and I have a great deal of respect for you and your abilities, but I think it's a mistake. I think going with the $2.5 billion of the administration's plan is a mistake. The Mitchell and Stafford bill, their costs are borne through the utility bills of polluters. The administration proposal is going to cost more than ours, certainly more than an acid rain control bill. I don't think it's going to satisfy the Canadians. I think they're going to say, "Wait a minute. Why don't you switch the type of coal you're using? Why don't you do some of the things that could be done today?"

I think you're going to have a hard time saying that you're fulfilling the commitments that Drew Lewis and the others made. I really do. And I think the Canadians are going to say that we're not living up to our promises, if they look at this, they will say, "It's simply more study."

I think there are political considerations here. I think that some of the states that have high-sulfur coal are probably there saying, "Let's keep studying it. We'll come up with some technology that will allow us to have our cake and eat it, too." But I think that if you don't have tough acid rain control legislation, you're not going to get the technologies; you're not going to have the innovation necessary; and you're not going to have the driving incentives for it.

I really don't think they will. Besides, under the Mitchell bill. when do the utilities have to start making decisions? Not until sometime in the early to mid-1990's.

Mr. THOMAS. Actually, I think they will have to do their planning earlier. There's a two-phase approach in several of the bills that have been introduced. But I think you're right regarding the final commitment of construction funds. I think it is by the early 1990's that their plans have to be approved.

I would say that if you require a utility to lay out a plan within the next 2 to 3 years as to what kind of technology it's going to use at its plant, then it's going to look largely at the technology that you talked about in your opening statement.

Senator LEAHY. I'm sorry, Mr. Thomas.

Mr. THOMAS. It's going to look at the technology that you talked about in your opening statement, which is scrubbers or coal switching.

Clean coal technology, as far as commercial availability for retrofitting is concerned, at the earliest, is probably 5 years away, and most of it is between 5 and 10 years away.

And I think that kind of timeframe for availability is fairly consistent with some of the timeframes that have been incorporated in acid rain control legislation, but the planning is generally far earlier than that. If you lay out a construction schedule for utilities ahead of that, then you probably have to move that planning more toward the mid-1990's.

Senator LEAHY. I understand, from the briefing material I received, there is an EPA analysis that said, looking at a 10-million-ton reduction bill, that 90 percent would come from fuel switching and 10 percent from technology; is that about right?

Mr. THOMAS. It depends totally, Senator, on what kind of changes you make in the law and what kind of flexibility you give to the utilities in making those decisions.

As I indicated, some of the provisions under the current law would force a utility to go in and put technology on. A lot of them would look at combinations of fuel switching and technology. It depends totally on the provisions you put in the law and the economics of the bill.

Senator LEAHY. But the Stafford-Mitchell bill gives that flexibility, does it not? I mean, allows utilities to go to coal switching or fuel switching.

Mr. THOMAS. I'd have to look at it, Senator. I'd say if you get beyond about 6 million tons, you're requiring utilities to get into scrubbers.

Senator LEAHY. Well, I'm talking—if you go to 6 million tons, I'm told the bulk of it, 80 to 90 percent of it, can still come out of fuel switching, and I suspect that that's probably where some of the opposition to the legislation comes from, not the question of economics or the question of technology or anything, but that we start looking at some of the politics of it.

High-sulfur fuel comes from West Virginia. That may be part of it.

Mr. THOMAS. I don't think there's any question in the debate on acid rain controls—and you probably know it far better than I that the issue of high-sulfur coal and where it comes from and miners' jobs are all a part of the debate.

I believe that the bills, though, the way they're drafted, would both end up with coal switching and scrubbing going on to get the kind of reductions that are required. Many of the bills have a fallback that would require plant-by-plant emissions limits which I don't think could be met without scrubbing in many cases.

Senator LEAHY. Well, I've got to tell you, there are a lot of opponents of tough acid rain legislation not only in the Congress, but in the administration, who are glad to seize on the $2.5 billion program and say, "This gives us a chance not to have to go forward and bite the bullet and have real acid rain legislation."

I think you're going to have a rocky time with some of the Canadians. If you drop down a few miles south and drop into Vermont, I know you would.

And I'm delighted to see emphasis on developing new technology. I think that that's commendable. But I'm concerned that it's creating an incentive not to go forward with clean air legislation, and I really would like to see a debate, a full debate, come on the floor over the Stafford-Mitchell legislation. I think it's good legislation. I think that the Congress ought to vote it up or vote it down.

I'm sorry, perhaps parochial interests would keep it off the calendar for awhile, but I also am sorry that the administration is unable to be supportive of it.

I'm not looking for an answer on that, because I know you're concerned about the effect of acid rain. Maybe we disagree on how we go about it. But don't be surprised if you're not welcomed with open arms by the Canadians on this, at least not privately.

We'll stand in recess for a few minutes. I believe Senator Mikulski is coming over, and she'll be here, and we'll give you a chance to chat on whatever her issues are, and I'm sure she'll be straightforward and will let you know exactly how she feels. [Laughter.]

Mr. THOMAS. Thank you, Senator.

Senator LEAHY. We will stand in recess.

[A brief recess was taken.]

Senator MIKULSKI [presiding]. Hello, Mr. Thomas.

Mr. THOMAS. Good morning, Senator.

Senator MIKULSKI. On behalf of Senator Proxmire, the subcommittee will come to order. Because of pending banking business on the Senate floor, Senator Proxmire has asked me to chair this hearing and, of course, any freshman that gets a chance to chair a hearing, of course, reluctantly accepts the honor. I understand I am the fourth chair that you have had. [Laughter.]

I'm sure there has been a consistent line of questioning and I won't want to repeat it.

Was there any round that Senator Proxmire wanted covered before I go into my own questioning?

The CLERK. No; just go right ahead. He will be back.

NONPOINT SOURCE POLLUTION

Senator MIKULSKI. You will be back tomorrow and so will Mr. Proxmire, but then so will I.

Mr. Thomas, it's good to see you again. I'd like to focus my line of questioning, if you will, on some water issues and then a few others.

First I'd like to talk about the legislation related to the Clean Water Act. As you know, the Clean Water Act established a national/federal/state program for this nonpoint source pollution, which, of course, is a great concern to both me, the state of Maryland, and others. I'm pleased to note that the key state which has been the model for the national program is Wisconsin.

I'd like to ask some questions about the implementation of that program. Last month I think the Environment and Public Works Committee asked you to provide a cost estimate on implementing the Clean

Water Act, including the nonpoint source program. Could you tell us where we are in the submission of that cost estimate?

Mr. THOMAS. Senator, we are in the final stages of preparing the Agency's request, both for 1987 and 1988, for implementation of the Clean Water Act. Over the course of the next several weeks, we will be working with OMB to determine whether, and what type of, supplemental requests may be required for 1987, as well as whether a budget revision will be required for the submission in 1988.

Our analysis has taken into account all the new requirements under the Clean Water Act. As a matter of fact, last week I went through hearings with my staff on the requests that have come up from our program offices.

Senator MIKULSKI. When do you think we can expect that? I know that Senators Mitchell and Chafee talked with you about that in a letter of March 3. When do you expect to get back to them?

Mr. THOMAS. Senator, I'd estimate the middle to the end of April.

Senator MIKULSKI. The middle to the end of April. At that time, too, we talked about the staffing of implementing the $100 million nonpoint program. You gave me a plan in which you said nine people were writing it, some of which were clerical. Do you feel you have adequate staff to design the plan?

Mr. THOMAS. Senator, I will let Larry Jensen, who is our Assistant Administrator for Water, expand on this, but I would say that overall, the nonpoint source program requirements under the recently reauthorized Clean Water Act are going to require, and have required, us to look hard at resources in the Agency, as well as resources the states have, to do that work.

But I think for both our Agency and the states, that's clearly one of the issues we have had to look hard at. The new requirements under the law, both the nonpoint source as well as those for several other programs, are going to require substantial planning, which will require substantial resources at the state level. They also require guidance as well as oversight for review at a federal level. We are looking hard at that.

Senator MIKULSKI. Well, I think this is very, very important. I know that this committee wants to make very prudent budget decisions in line with the authorizing committee, and at the same time we will be looking for the Budget Committee's mark.

We know that you have to really allocate your resources in the most prudent way. I know, for example, in my own state, you have made such enormous strides in the cleanup of the bay, and now we move to the actual implementation and whether we are talking about our colleagues in Pennsylvania, for example, Representative Walker and his side of the Susquehanna, Representative Dyson and myself and our side of the Susquehanna, we feel that cleaning up nonpoint pollution in the bay is what really will solve the problem.

We know that in Maryland we have passed critical areas designations, yet agricultural people tell me that working with soil conservation peo-

ple, they have the tools, the technology, and the methodology to really comply. This is what we are looking for.

We need to know what staff you need. We have spent so much money so far that we don't want to erode the gains that have been made.

Mr. THOMAS. Senator, I certainly agree with you regarding the importance of nonpoint source pollution. I think clearly the Chesapeake Bay problem is a good example of identifying nonpoint source pollution as a major contributor to pollution. It's a major contributor to pollution in lakes and streams around the country.

We think, as a matter of a fact, that the examples of the Chesapeake Bay and some others, and the kind of programs the states have implemented, are exactly the kinds of programs that are going to be needed in a number of states around the country.

What we are really focusing on as we look at our 1987 and 1988 needs, is to get the nonpoint source planning, as well as the other requirements under the Clean Water Act that require extensive state assessment during the first 18 months after passage, off to a good strong start. That means looking at what resources we need and what resources the states need.

That first 18 months after passage is a critical stage for implementing the new requirements; nonpoint source, post-BAT, and a variety of others, which all require extensive assessment by the states. Looking at their needs and our needs is a priority for us.

FEDERAL AGENCIES' COORDINATION ON NONPOINT SOURCE POLLUTION

Senator MIKULSKI. I want to ask a question about the way agencies coordinate with each other and then come back to what you have submitted.

One of the aspects that I know has been a big help to nonpoint source control has been the soil conservation programs. I know that is under USDA. Now, do you all meet to deal with nonpoint pollution and then USDA is going to do this with soil conservation and EPA will do this and perhaps some other agencies?

While we are sitting here talking about nonpoint pollution and me asking you what you are going to do, I know that soil conservation has cut their budget and their staffing considerably, particularly the 31 positions that were designated to the bay.

I'm wondering what kind of coordination is going on here.

Mr. THOMAS. Senator, several years ago, there was an overall planning effort among federal agencies related to nonpoint source pollution. Obviously, that required a considerable amount of planning on Agriculture's part and a strategy was developed by each of the federal agencies. There is coordination and communication among the agencies regarding implementing those strategies.

That does go on, and has gone on. Clearly, funding priorities within agencies and funding priorities overall for the federal government have to be set by the administration. I think a variety of things have to be taken into account when those funding priorities are set. Obviously, within the Department of Agriculture, they are not able to provide the kind of funding for that program that was anticipated several years ago when we talked through the strategy.

Larry, you may want to comment more on the coordination with Agriculture.

Senator MIKULSKI. Go ahead, Mr. Jensen.

Mr. JENSEN. Mr. Thomas is correct in saying that there are specific strategies that have been developed by each of the federal agencies that have some involvement in the nonpoint source program and we do meet periodically to review the progress being made under those various strategies.

I think with respect to the Department of Agriculture and its nonpoint source efforts, clearly the program with the greatest potential at Agriculture for getting after nonpoint source problems is the conservation reserve, the sod-buster provisions in the recently passed farm bill. I think that is where Agriculture is placing its emphasis in terms of trying to control some of the nonpoint source pollution problems.

Senator MIKULSKI. Of course, what that means is people are being detailed away from some of these other programs.

Mr. JENSEN. That may be. I'm not familiar with the details of it, but I know we see great promise in the administration of those conservation reserve provisions, in terms of reducing nonpoint source pollution.

Senator MIKULSKI. Have you had to submit to OMB your plans for the implementation and then how does that tie in with this cost-benefit analysis?

Mr. THOMAS. We are in the final stages within the Agency of preparing the Agency's submittal to OMB, both for 1987 and 1988 requirements, for implementing the Clean Water Act. I would estimate that probably will be done in the next few weeks.

FUNDING FOR THE CHESAPEAKE BAY PROGRAM

Senator MIKULSKI. OK; thank you. One last thing about water, actually a couple of things about the bay. You submitted to me your staffing plan on the Chesapeake Bay. I think you did an excellent job with trying to pull people in. I want to commend you for not letting the budget shortfalls detract from an overall mission set by the President and my predecessor.

Do you feel you have asked for adequate funding for the implementation of the bay program?

Mr. THOMAS. Senator, we feel we have. It continues the commitment to the bay. I think, and you clearly have shown this as well, the kind of commitment that is going to be required to deal with the bay is a long-term commitment. The request for 1988 continues basically the level of commitment we had for 1987. We think it is sufficient.

Senator MIKULSKI. Did OMB give you all that you asked for?

Mr. THOMAS. Yes; I believe they did. We requested $10 million in the EPA budget to OMB. That's basically the same level as 1987.

Senator MIKULSKI. The Clean Water Act authorizes $13 million, which is about a $3 million difference. Will that gap impede the program?

Mr. THOMAS. I don't believe it will, Senator. As a matter of fact, I don't believe we are going to request additional funding between the $10 and $13 million authorization and appropriation levels. We think the $10.4 million requested in the 1988 President's budget is sufficient to deal with the issues.

Senator MIKULSKI. Well, I can't thank you enough for how hard you have worked on this. I think all of us in the bay area do. We hope as we are successful, and I know I am going to be working at another end to get those soil conservation bay designated types back in the budget, but we hope this is a national model that you can use with other states and, perhaps, even with other countries. I want the bay program to succeed, not only because of its importance to our bay, but then, hopefully, we can use that in the Great Lakes as a model, working with Canada, that we could use it in Puget Sound, and in many other areas.

We know we are a laboratory here for not only good science but good management as well.

Mr. THOMAS. Senator, we have already begun that, as a matter of fact, the process of federal/state/local and private citizen involvement that has been such a strong part of the bay program, it has been used as a model by EPA. We have had lengthy discussions with the people around Puget Sound about the model that was used in Chesapeake Bay. Also, the projects like the nonpoint source project, that the states have operated around the bay, are being used as models for a general nonpoint source technology transfer effort by the Agency.

There is also international interest. We have had expressions of interest on the bay program. I think, clearly, it is going to be a model and you are right that in and of itself, the need to restore the bay certainly justifies the effort, but the fact that it will serve as a model is further evidence of its importance.

THREE MILE ISLAND

Senator MIKULSKI. One last question about the bay. There is a draconian sword that hangs over our head, which is the hot water that is still up in Three Mile Island. That water has been sitting up there for some time. There is always speculation about what NRC is going to do and so on.

Could you tell me if your Agency has been involved in any conversations with NRC about Three Mile Island or your involvement with the company itself? Do you provide technical assistance?

Mr. THOMAS. We actually have a small group of EPA personnel who have been involved in monitoring on-site at Three Mile Island since the accident. Obviously we have been very involved at the accident site it-

self, which is managed out of our Radiation Program Office. To my knowledge, we have not been involved in any discussions lately with NRC or the company concerning Three Mile Island.

Craig, do you have any further information? Craig Potter is our Assistant Administrator for Air and Radiation.

Mr. POTTER. Senator, Lee is correct. We have a group up there who have been involved in monitoring. There is a schedule for removal of contaminated materials from TMI by December 1988. Regarding the waste water issue, I'm not familiar with that. We are considering the future resource needs at Three Mile Island, pending removal of those contaminants.

We could certainly respond to your concern and find out.

[The information follows:]

THREE MILE ISLAND WASTE WATER

The Nuclear Regulatory Commission [NRC] has developed an environmental impact statement [EIS] that analyzes a number of disposal options for the waste water at the Three Mile Island No. 2 reactor. The options included in the EIS are on-site evaporation, solidification of the "bottoms," and disposal on-site or at Hanford, Wash.; bulk shipment of the liquid to the Nevada Test Site for evaporation or deep-well injection; bulk shipment of the liquid to Hanford for crib disposal; solidification and storage of the liquid on-site or at a commercial low-level waste burial site; discharge to the Susquehanna River over either a period of 1 year or a few days; and storage in tanks on-site.

The NRC has submitted this EIS to the Agency for review and comment. The Agency will complete its review by April 30, 1987.

Senator MIKULSKI. I would like to know what is going on up there and what their plans are. I know I speak for Senator Specter and Senator Heinz. They have been extremely cooperative in the bay program and on matters like this we want to move on a multistate bipartisan basis. We just don't want to be caught by surprise. Of course, we are concerned—even though Three Mile Island is off the headlines, we want to be sure we are moving in a prudent and environmentally sound way.

I'd like to be kept apprised of any meetings that might go on.

Mr. POTTER. Certainly.

RADON ISSUE

Senator MIKULSKI. Thank you.

Moving on to a couple of other questions, I'd like to now go to the issue of radon, if I could. You are proposing radon research and DOE is significantly increasing their radon research. Could you tell us exactly what you want to accomplish in the area of radon and what would be the budget you are asking for to do that?

Mr. THOMAS. Senator——

Senator MIKULSKI. There's a real panic going on, you know. I mean, people read about radon and they are afraid every time they pick up their toothbrush, they are going to start to glow in the dark.

Mr. THOMAS. I got a brochure in my mail the other night, Senator, from a group——

Senator MIKULSKI. They are also hustling the consumers.

Mr. THOMAS [continuing]. That wanted to come in and test my house. About a year and a half ago, we laid out an extensive strategy for dealing with the radon issue. We coordinated it closely with state health officials and state radiological officials and other federal agencies, but particularly with the state officials in virtually every state. That strategy was one of trying to work with the states to actually provide the public with as much information as possible to determine whether they had a problem, what the problem may mean as far as health risk is concerned, and then what could be done about that problem.

Now, in order to do that, we developed an extensive program to do several things. One is public information on what radon was, what the risk from radon is, where radon came from, and a citizens' guide on radon that has been distributed by states all over this country through their state health agencies.

The second thing was a program to check the accuracy of testing by companies for radon, basically to meet the qualifications and criteria that were established by our laboratories for that kind of testing.

Third, a mitigation program where our engineers went out and worked to actually modify homes with before and after testing, to look at different techniques for dealing with the radon problem once it was found. We incorporated that into a homeowner's guide explaining how you could modify your home or how you could get a contractor to modify your home and how you could bring those radon levels down.

All of that has been actively underway for the last year and a half, particularly in Pennsylvania, New Jersey, and other states where there has been tremendous public concern on this issue. We are working very closely with the states.

Second, we have worked to move to the phase of surveying where we may have radon problems beyond those we have already identified. We are also doing that closely with the states. We have a number of states that are working with us to move with surveys, to actually go out and determine through testing where there may be radon problems.

Our effort has been largely oriented toward trying to deal with the problem in the field with as much good, accurate information as possible to individual homeowners as to how they can find out if they have a problem, what that problem may be as far as health risks to them and their family once they have measured it, and what they can do about it as far as a contractor's assistance in their homes and looking at cost-effective ways to do that. Through our research over many homes, actually going out and modifying the homes with contractors, we have found ways to substantially bring down the cost of reducing radon levels in homes through air exchange systems and through actual modifications of basement walls and linings around homes. We have incorporated all of that into our homeowner's guide.

That is the direction we are trying to take for the future. We have actually, in this budget request, requested an increase in the number of staff in our field offices—that's our regional offices—to deal with radon, because we are really in the phase now of working with the states to do the surveys, to try to work with the public on the radon risk.

Our research budget has gone down because we will have mitigated over 100 homes by the end of this year to demonstrate the various techniques that can be used to modify a home, and we are now trying to apply that information out in the field.

The Department of Energy budget is largely oriented toward epidemiological research on the health effects of radon, health consequences of radon. That has been a long-standing program in the Department of Energy. It came out of their weatherization effort, where they closed up homes. This resulted in the increased radon levels which we found in many of the homes.

Between the Department of Energy, our Agency coordinating, and the Department of Health and Human Services, CDC, looking at health consequences of radon has clearly been an ongoing part of the federal research program. However, I would emphasize, EPA's research is heavily oriented toward dealing with the problem in the field.

LEAD AGENCY FOR RADON RESEARCH

Senator MIKULSKI. Is there a lead agency that has been established for research in this? Will that be you?

Mr. THOMAS. As far as the types of research, we clearly are the agency which has done most of the research as far as actually learning what you do in the field with a home once you find radon, and what techniques you apply to mitigate radon.

As far as the epidemiological work, I would say more of the lead has been taken by the Department of Energy, although we have done some.

As far as the actual working out in the field with the public and the state health agencies, EPA is the lead.

Senator MIKULSKI. I'm happy to hear that. Of course, as you know, one of the concerns I have is when something breaks in the news, then greed and fraudulent contractors emerge and really exploit people. There is a newspaper article series running in Maryland right now in the Evening Sun about radon. We seem to be in something called the Piedmont area where radon is in our rock and soil system. I just have concerns that somebody is going to come knocking on the doors of unsuspecting people and say, "I can fix it," the way we went through the asbestos problem.

Mr. THOMAS. That is a problem, Senator, not only as far as the potential for fraud and as far as construction is concerned, but also as far as testing is concerned, actually determining whether you have a problem. That is why we put our testing qualification program in place.

We have had way over 100 companies able to do proper testing of radon in homes. There are also numerous reputable contractors who are capable of working with homeowners to retrofit homes with modifications to take care of radon gas.

The concern that you voiced is a very real concern.

Senator MIKULSKI. We welcome any ideas that you have. I know EPA under your direction has really moved to better involvement with the public and consumer education. I think that is going to be one of the ways that you are going to be known, by increased public participation, openness, and really working in the field with consumers.

We have other questions but I think they can wait until tomorrow.

SUBCOMMITTEE RECESS

The subcommittee will stand in recess until 10 a.m. tomorrow. We will meet here on the 27th in room SD–124. We will continue to take testimony from you and the Council on Environmental Quality.

I will be talking to you about Superfund and ship incineration tomorrow.

Mr. THOMAS. Thank you, Senator.

[Whereupon, at 11:39 a.m. Thursday, March 26, the subcommittee was recessed to reconvene at 10 a.m. Friday, March 27.]

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT-INDEPENDENT AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1988

FRIDAY, MARCH 27, 1987

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:05 a.m. in room SD–124, Dirksen Senate Office Building, Hon. Barbara Mikulski presiding.

Present: Senators Mikulski, Lautenberg, D'Amato, and Grassley.

ENVIRONMENTAL PROTECTION AGENCY

STATEMENT OF LEE M. THOMAS, ADMINISTRATOR

ACCOMPANIED BY:

HOWARD M. MESSNER, ASSISTANT ADMINISTRATOR, ADMINISTRATION AND RESOURCES MANAGEMENT
LAWRENCE J. JENSEN, ASSISTANT ADMINISTRATOR, WATER
J. WINSTON PORTER, ASSISTANT ADMINISTRATOR, SOLID WASTE AND EMERGENCY RESPONSE
JOHN A. MOORE, ASSISTANT ADMINISTRATOR, PESTICIDES AND TOXIC SUBSTANCES
J. CRAIG POTTER, ASSISTANT ADMINISTRATOR, AIR AND RADIATION
JOY WILSON, ASSISTANT ADMINISTRATOR, EXTERNAL AFFAIRS

OPENING REMARKS

Senator MIKULSKI. The subcommittee will come to order. This morning we will conclude our hearing from the Environmental Protection Agency on the fiscal year 1988 budget request. Also, on the agenda is the Council on Environmental Quality, which was established more than 18 years ago to advise both the President and the Congress on key environmental issues.

We will begin with the Environmental Protection Agency and continue our hearing from yesterday.

The Chair would like the record to show that Senator Proxmire is on the floor with a banking bill, and I am acting on his behalf, and the next set of questions will be the Proxmire questions to you, Mr. Thomas, and to your team.

First, Mr. Thomas, Mr. Proxmire wanted me to raise the issue of your supplemental request, and we will go through some of those questions.

What he would like to know, and so would I, is what is assumed under the supplemental request to transfer $22 million for pay and retirement. You want to transfer $22 million from two programs as offsets for pay and retirement; is that right?

Mr. THOMAS. Yes, Senator. That is for the pay raise and for the new federal retirement system.

Senator MIKULSKI. You also want to move $11 million in funds out of R&D. Would this be spread evenly across all of it?

Mr. THOMAS. Let me ask Howard Messner, our Assistant Administrator for Administration and Resource Management, just to give you a rundown about the proposals.

Senator MIKULSKI. I know that this new retirement system is giving everyone pause, and I think we want to know if you are going to pay for it by shifts; what is the impact of that shift? In particular, we note that you are spreading $11 million out of R&D, and then another $11 million-plus out of abatement, control, and compliance. We want to know where the cuts occur and then, what would the impact of that be.

Mr. MESSNER. Senator, as the Administrator said, we had to make up the $22 million from existing funds. About $8 million of that would be spent for the new federal retirement system. We are not sure that this estimate is totally accurate because we don't have the list yet of our employees who will transfer into the new system thereby requiring the government to match their retirement amounts.

The money is coming out of two accounts. It was the only way we could generate the income without seeking additional budget authority. We will spread the reductions through those accounts as evenly as we can, trying to pick out those priorities which aren't as high, and use the money to keep our personnel system sound.

Senator MIKULSKI. Could you identify what those priorities would be?

Mr. MESSNER. We are in the process of doing that and we would be glad to provide that to the committee as soon as it is completed.

Mr. THOMAS. But, Senator, if you look at those two accounts, one is the account for the vast majority of our research and development. We are talking about where within that account we would redirect funds to pay for increased personnel costs. I don't think it will just be an even reduction across all research and development programs. We will look at where we feel we have a high versus a low priority. We will do this for our abatement, control, and compliance account also, which is our program contract account.

So what you will see is that some programs and some research and development would be reduced more than others, although we really haven't made those final decisions at this point.

Senator MIKULSKI. The House rejected the request to transfer funds out of these programs. They added $14 million to partially cover pay and retirement, asking you to make up the $8.4 million difference. How would you go about making up the $8.4 million? Same strategy?

Mr. THOMAS. Our strategy would probably be a little modified, because in addition to the $14 million, they also provided $30 million for implementing the Clean Water Act with the understanding that that amount would also be in our base when we looked at how we would make up the $8.4 million.

So, some of the $8.4 million would probably come out of that $30 million.

Senator MIKULSKI. Clean water?

Mr. THOMAS. The $30 million amount that they added for clean water is a potential source of funds that we are looking at.

REPORT ON AGENCY PRIORITIES

Senator MIKULSKI. Well, this then takes us to the question of priorities, because that is the criteria. Could you tell us briefly about the key findings included in the recent in-house report you did on the relationship between environmental risk and Agency priorities?

I understand the report suggested some modification of these priorities and I would like to know what they are.

Mr. THOMAS. Senator, about a year ago I commissioned an overall review of priorities within the Agency looking at it from a broad risk perspective. This includes health risk, both cancer risk and noncancer risk, ecological risk, and welfare risk—welfare meaning material effects of pollution.

I had a group of over 70 senior career officials in the Agency work to quantify risks of the various environmental pollutants that we deal with. Using as much quantitative information as possible—in other words, data that was available, but also qualitative information—these senior officials gave me an estimate of the overall environmental risk and also the resources that we had in the Agency applied to those risks.

The report was recently finished. Its title was, "Unfinished Business," because, in fact, it was looking to the future. It was our comparative risk project, and the conclusion was that if you take a broad view of the risk, taking into account ecological risk, welfare risk, and health risk, that some of the things that we have not paid particularly high-priority attention to as far as resources are concerned, are things that we probably should pay a high-priority attention to.

The discussion you and I had yesterday on radon is a good example. Radon presents a very high risk as far as health is concerned, and up until the last year and a half we had not paid the kind of attention to radon that I think it warranted.

We have begun to pay more attention to it and I believe what we have done during the last year and a half is evidence of that. Another example, however, is the criteria pollutants under the Clean Air Act. They have been a very high priority for the Agency for the last 15 years as reflected in our budget requests. They continue as a high priority, and the comparative risk project showed that they should continue as a very high priority.

On the other hand, it suggested that probably the attention we were giving to ground water pollution as far as resources were concerned possibly did not present as high a risk as some of the other categories we were dealing with, like the air pollution category.

So, looking at overall resource requirements for the Agency, I think the study provides us with one more tool with which to make decisions, one more tool that came from a good, thorough review of what the problems are we need to address and how we need to address them.

I think the report's findings are consistent with what we have been doing in a number of programs during the last couple of years, but the report also points us in some new directions. As we look at budget priorities in our planning process for fiscal year 1989, we intend to use that report as one more source of input in setting those priorities for the Agency.

Senator MIKULSKI. I think it is an excellent report. I am delighted, and I know I speak for Senator Proxmire, that you have commissioned it. What our question then is, with this management tool and reevaluation of sound, career people, to what extent does your budget request reflect these changes in priorities?

Mr. THOMAS. I don't think the 1988 budget reflects that specific report. The first time we would have the opportunity to incorporate this information would be in our 1989 budget. I must say, though, that the 1988 budget reflects the input of the same people who prepared the priorities report. So, to that degree, the 1988 budget does reflect it. That is why you have seen the radon program strengthened over the last couple of years, and why you have seen the Agency become far more aggressive on the stratospheric ozone depletion issue, and structuring a climate change program.

The activities the Agency has been working on, to a large extent, reflect the fact that we believe we have to take a broader look at risks and we have to look at overall resources. The wetlands initiative that we undertook during the last year resulted in the establishment of a new Office of Wetlands Protection. This action is supported by what you will see in the Agency priorities report when you look at ecological risks.

So, overall, I feel that the direction and priorities of our 1988 budget are consistent with that report. However, they are not as specific as you will see when we look at 1989 and we have the opportunity to have the full report for input.

GLOBAL ENVIRONMENTAL ISSUES

Senator MIKULSKI. I am sure at that time, certain other international agreements will be completed; that while we are working on very specific American concerns, I think what emerges is that there are several international problems you are grappling with, with acid rain—our neighbors from Mexico and Canada. We note your request to implement the President's desire to meet our agreements. Then also, you are working now with our own State Department on the International Treaty on Ozone Depletion.

Mr. THOMAS. That is correct. Global environmental issues, I believe, have continually got to take a fairly high priority for our Agency in that the solution to global problems has to be one among all countries. Stratospheric ozone is a good example. International research on environmental pollution and environmental solutions is something that we have worked to strengthen over the last several years. I think it is paying off for the United States, as far as learning from other countries' experience, and I think it pays off for the other countries learning from our experience. Clearly, the United States is a world leader as far as environmental protection is concerned, but I find there is still a tremendous amount that the United States can learn from cooperative efforts with other countries.

Senator MIKULSKI. The committee notes that we have been joined by the able Senator from New York, Mr. D'Amato.

Right now I am asking Proxmire questions, and we are going to go through some on management and support. We have a few here and then we will turn to you, Mr. D'Amato.

Senator D'AMATO. Thank you, Madam Chairman.

MANAGEMENT AND SUPPORT BUDGET

Senator MIKULSKI. Management and support issues that Mr. Proxmire wanted me to ask, is something related to your budget and then also user fees. He asked me to ask you, why is the management and support budget increasing by almost $24 million next year? That is a 7-percent increase over the revised level this year. Are pay raises factored into this?

Mr. THOMAS. Senator, those are largely uncontrollables, like increases in rent and utility costs, et cetera. I would like Mr. Messner to give you a broader explanation.

Mr. MESSNER. Senator, almost $11 million of the $24 million are SLUC charges. Those are the charges——

Senator MIKULSKI. What charges?

Mr. MESSNER. SLUC—standard level user charge.

Senator MIKULSKI. Isn't that something you have a regulation on? That is what is coming in the bay.

Mr. MESSNER. Senator, I wish we had half the control over SLUC charges that we have over some discharges.

Anyway, SLUC charges are rent charges passed to our Agency by the General Services Administration, which is the landlord of the government. GSA has increased our rent charges by almost $11 million next year which accounts for, as you can see, almost half of our increase.

The other increases lay in increased costs for services like the federal telecommunications system.

Senator MIKULSKI. So part of that 7 percent is rent increases?

Mr. MESSNER. Half of it is rent; the rest of it is for support costs such as telephone charges and equipment lease charges that have escalated. There are no personnel costs included in that number.

REQUEST FOR CONTRACT MANAGEMENT

Senator MIKULSKI. This goes to contract management. What level of resources is the Agency requesting for the contract managements in 1988, both in the S&E appropriation and in the Superfund?

Mr. MESSNER. Senator, we have been building up our contract management capacity. We added about 50 work-years last year in Superfund contract management. This year we have a relatively modest increase and I will provide the exact number for the record.

[The information follows:]

Our Superfund contract management work-year increase in fiscal year 1988 was 20 FTE.

Mr. MESSNER. In the last 3 or 4 years, we have had a very significant increase in our contract activity.

Mr. THOMAS. Senator, I would add that that increase has included both our operating program budget, as well as our Superfund budget, as Howard said, resulting in increased staff, more contracting officers, and more training programs for the financial management and program management staff that oversee contractors.

Senator MIKULSKI. Mr. D'Amato.

Senator D'AMATO. Thank you very much, Chairman. It is good to see Mr. Thomas here.

OZONE MODELING AND NONATTAINMENT

Lee, as you know, the state of New York has areas which will be facing sanctions if Congress does not extend the 1987 deadline under the Clean Air Act for attainment of carbon monoxide and ozone standards. Certainly, the city of New York is not alone in this regard, but I am sure that you know it is a particularly difficult problem for the city.

According to our region 2 Administrator, Mr. Daggett—who, I think, is doing an excellent job under some very difficult circumstances—even if all automobile traffic in Manhattan were eliminated, New York City probably wouldn't be able to attain the standard for ozone due to the problem of ozone coming from upwind areas, such as Pennsylvania—let me just say our bordering states.

It may be that the ozone coming across the borders is already over the standard. I understand that EPA is sponsoring a regional modeling study on this issue, and the study is known as the oxidant modeling in the New York metropolitan area project.

Regarding that, I am wondering if you could give us the status of that study and how much money it will take to complete it, when you believe it will be completed, and do you have enough money in this year's budget to proceed at optimum speed?

Mr. THOMAS. Senator, I am going to ask Craig Potter, our Assistant Administrator for Air and Radiation, to give a specific answer to that. But first let me just give a general overview.

The issue of transport as a part of the ozone nonattainment problem is a major issue. The regional modeling that we are developing—and actually we have been working on it for a number of years—will need

funding in 1987 and 1988, and probably beyond, to continue to use it. This is only a part of the answer. Probably the biggest part of the answer for New York on regional transport is the fact that we are going to require controls all up and down the Northeastern Corridor, probably from Washington all the way up to Connecticut.

The issue of ozone nonattainment is that broad. I feel certain that most of the large cities—Washington, Baltimore, Philadelphia, on up through New York and into Connecticut—are going to be in nonattainment come the end of this year. We have probably 70 to 75 cities projected for nonattainment; probably 40 of them absolutely will not make attainment.

Senator D'AMATO. Take it the next step.

Mr. THOMAS. The next step being——

Senator D'AMATO. The next step.

Mr. THOMAS. What happens after 1987?

Senator D'AMATO. Yes; nonattainment. What is the next step?

Mr. THOMAS. Well, as far as we are concerned, the next step is underway right now, and consists of reviewing why cities are not in attainment.

Senator D'AMATO. Well, for example, if you would take what I spelled out to you—that all automobile traffic of any kind in New York were eliminated—there is a good chance that it would not be possible to meet the standards.

Mr. THOMAS. For a good while, I think that is true.

Senator D'AMATO. By the way, that would be the case in many other large urban centers; is that not the case?

Mr. THOMAS. I think it is in the large cities. Probably at least 20 to 25 big cities have that problem.

Senator D'AMATO. That is a significant number.

Mr. THOMAS. Absolutely.

Senator D'AMATO. What do we do?

Mr. THOMAS. I think we have to look at, not just a short extension of attainment dates, like 5 years, like we did last time. I think we are going to have to have more flexibility as far as attainment dates, and in some cases you may be thinking more like 15 and 20 years. Additionally, I think we have to come to grips with how much and how far do we want the cities to go as far as the controls are concerned, and how much do we want them to take economics into account when they make those decisions.

Now what that all means is we have to look at a revision to the Clean Air Act, a substantial revision related to ozone nonattainment.

BRIEFING SENATE STAFF ON OZONE

Senator D'AMATO. Have you been talking to the various committee staffs in regard to what the problem is? You know, in some cases it is great to be for the environment, for clean air and clean water, and I am. But in terms of how we attain those types of goals, I think that some of the staffs on some of these committees don't have the slightest idea, or just don't give a darn, of the practicalities.

Now, have you begun to brief them, for example, like the state of New York under its SIP program—the state implementation plan—in their desire to do a good job? Maybe it provided more than most of the other states did in that plan and, therefore, now have a much more difficult time than others who had no plan.

Mr. THOMAS. We have spent a good bit of time already in briefing staff, plus we have had——

Senator D'AMATO. It is the staff that runs most of the Congress. With the exception of the chairperson here, I would say we are totally dependent—and you have a staff mentality that is not practical as it relates to some of these issues.

I will be in deep trouble when they find out what I have said; deep trouble. They don't pass any of my bills, anyway.

Mr. THOMAS. In the last 6 months we have spent considerable time briefing staff. We have also begun the hearing process. We had a big hearing on the House side, and the Senate side is scheduled for the end of April.

I noted last week that there has been legislation introduced by two Senators that would tighten the standard considerably.

Senator D'AMATO. There you are.

Senator MIKULSKI. Make it tighter on us?

Senator D'AMATO. People won't even be able to walk soon; forget about automobiles.

What I am concerned about is what kind of cutoffs or penalties do we see? Do we envision prohibiting construction, for example? Cutting off sewage grants and water treatment grants, clean air grants, so that we exacerbate the problem? We do not make it better.

I could understand if the area were getting worse, there were no plan of attack, and there were no progress being made. But to simply penalize a state or region through a cutoff of funds, to say we are not going to allow any construction, we are going to take very restrictive steps, I think that would be counterproductive.

For example, not allowing sewer grants, monies for sewers, water treatment.

Mr. THOMAS. We are doing all of that now and we are going to do a lot more over the next several months.

Senator D'AMATO. Doing what?

Mr. THOMAS. Banning construction of new sources, cutting off highway funding.

Senator D'AMATO. Oh, good.

Mr. THOMAS. We have a proposal now to cut off the sewer funding.

Senator D'AMATO. That is great. We cut off the sewer funds and we just exacerbate it. We send it out like we were in the North River—raw.

Mr. THOMAS. But Senator, the current law doesn't really give us any option on it.

Senator D'AMATO. I understand, and my point, Lee, is what are we doing to bring the Congress and the staffs that advise the Congress together on this, because we never have time, we are always walking around these halls reading these papers that staff has given to you. Isn't it nice what a 6-year term can do? [Laughter.]

Senator MIKULSKI. I think that Senator D'Amato makes a good point, which is you have very little flexibility in terms of the implementation and we feel now that there will be very harsh and stringent measures put upon them. You will enforce the law, which is your obligation. Mayors and Governors and a variety of other economic interests will come to us looking for relief and it will create a crisis.

I think what Senator D'Amato would like to see is, what can we look at now to revisit the act and have some type of orderly plan; we need to revisit this in some type of orderly way. What we really need from you is other recommendations, other than these draconian things, like cutting off sewer grants.

Senator D'AMATO. Which will exacerbate the problem.

Mr. THOMAS. I am fully in favor of that, and I share your concern and——

Senator D'AMATO. By the way, I don't envy your task, and I think it should be your responsibility to educate the various committees, the staffers, and the Members of the Congress, because you will be the first who will be accused of being opposed to providing the proper needs for the environment.

Mr. THOMAS. I already have been. I proposed a little less than a year ago a strategy for dealing with the issue—very public—and said I wanted to have a public debate on it. I got one. I was accused of not being stringent enough in enforcing the Clean Air Act by some, I was accused of being too stringent by others, and I was accused of being illegal by others.

It is a strategy for debate and dialog, and that is exactly what we need to have. You are absolutely right about trying to educate and come together on a solution.

Senator D'AMATO. Madam Chairman, let me thank you for your quite accurate observation of what I am concerned about. We may have a chaotic situation developing, and we are not, in the various committees, charged with the responsibility of drafting and implementing these laws. I think we have to take an overview of this and ask what are we going to do? Are we simply going to bring construction in these urban centers to a halt? Or, do we look to see that additional gains continue to be made, maybe not on as fast a timetable as spelled out, and provide the kind of flexibility necessary to continue to improve the quality of life and environment in our urban centers, but not bring disastrous consequences, economic and social, if we were to administer the law as it is written and interpreted today.

I have several other questions I would like to submit in writing, with the permission of the chair, and one with respect to Mastic Beach, Shirley, Long Island area, in the town of Brookhaven.

NEW SUPERFUND LANGUAGE

As you know, that is an area of about 6,000 to 7,000 homes that do not have potable water, that are dependent upon bottled water. I understand that the new Superfund language is far less restrictive regarding the "imminent and substantial danger," and it allows EPA to go into these areas where there is potential for such danger.

I note in your testimony this morning that you make reference to increased emergency actions under this program. Let me ask then, has that language in last year's reauthorization allowed you to take any additional actions in cases like Mastic Beach and Shirley, which you could not have taken under the previous Superfund law?

Mr. THOMAS. Senator, I am not familiar with that specific situation. We will review it and give you a written response. I would say, though, that the authorizing language in the bill last year did broaden our authority as far as emergency actions are concerned. However, we will have to look and see how this broadened authority relates to this specific case .

Senator MIKULSKI. Just for purposes of clarification, the response to Senator D'Amato's question regarding Long Island will be directed to him and not for the record, is that correct? And then you have questions you want to submit for the record.

Senator D'AMATO. Yes; I have several other questions I would like to submit for the record, Madam Chairman.

Senator MIKULSKI. Certainly, with no objection, so ordered.

Senator D'AMATO. And might I say, this has been one of the more delightful hearings. I look forward to the chairperson conducting more, and I would like to be there to aid and to help in any way possible.

Senator MIKULSKI. Well, it is the first endorsement I have ever seen Senator D'Amato make, with the Democrats having control of the Senate.

Senator D'AMATO. You have to be careful when dealing with this chairman. [Laughter.]

OCEAN INCINERATION

Senator MIKULSKI. Thank you. Let me move on to my own set, and see if Senator D'Amato has any for the second round. First, I would like to thank you for your letter—this is the Chesapeake Bay and the empress project. I would like to thank you for your letter of support.

The letter that you sent to the U.S. Navy questioning the advisability of the empress project in the Chesapeake Bay was very much appreciated. And, along those lines, just a question on ocean incineration, if we could.

The Office of Technology Assessment has stated that the disposal of hazardous waste by ocean incineration is an interim technology and we wonder what your comments are on that and what your timetable is for issuing regulations on ocean incineration.

Mr. JENSEN. We were pleased by the findings of the OTA and that they were consistent with the ones that we have made with respect to the potential that ocean incineration has as a technology. Our present

schedule is this. As you recall, we had a rather involved public hearing process a year ago in preparation for having a research burn.

So many questions were raised in that process that we postponed the research burn and have since been working on developing the regulations. In these regulations we are responding to the comments that were raised in the public hearing process.

Our present schedule is in two parts. We have broken out the portion of the proposed regulations dealing solely with site designation and feel that we are able to go ahead with the promulgation of the final site designation regulations this summer. The balance of the regulation, taking into account the things we learned last spring, will be reproposed this summer and under a normal schedule would then be finalized during the summer of 1988.

Mr. THOMAS. Senator, we do have litigation against the Agency on this issue. I would just point this out as a factor that could modify the schedule if, in fact, the court feels that we are not following proper procedures. We certainly feel we are.

Senator MIKULSKI. On your track, you expect to have your siting regulations done by——

Mr. JENSEN. This summer, in final form.

Senator MIKULSKI. And then your implementation regulations done by——

Mr. JENSEN. The following summer, 1988.

Senator MIKULSKI. But there will be no ocean incineration until the completion of the regulatory process, both siting and implementation.

Mr. JENSEN. That is correct.

Senator MIKULSKI. Thank you.

Senator D'Amato, do you have any other questions?

Senator D'AMATO. No, I don't, Madam Chairman.

AFFIRMATIVE ACTION

Senator MIKULSKI. One of the questions we wanted to ask is about the affirmative action plan at EPA. Your Agency used to do rather well as far as employing minorities and females. What we are interested in is a description of your affirmative action plan.

What are the number and percentages of blacks in your work force?

Mr. THOMAS. Senator, we feel that we do have a good affirmative action plan in the Agency, one that we have implemented aggressively since I have been Administrator.

Let me look and see if I can give you the exact percentages. Of the total Agency work force, 45 percent are women and 22 percent are minorities. This represents a 1-percent increase in each category over last year. In other words, for women and minorities there has been a 2-percent increase over last year.

Senator MIKULSKI. What is the grade job currently being held by a black person and by a female?

Mr. THOMAS. Howard Messner, I think, would have the specific information.

Mr. MESSNER. Senator, in terms of highest grades, we have a number of minorities and women in the senior executive service in the Agency. That is the highest rank in the career service, as you know.

We have a chart here which displays the number of all of the women and minorities in the Agency; 14 percent of our SES are women or minorities, and in terms of numbers, there are 32 women and minorities in that grouping. I could provide you the detail for the record if you would like it, rather than read the whole chart.

Senator MIKULSKI. I would like to see the chart.

What is the highest ranking job being held by a woman in your Agency?

Mr. THOMAS. She is sitting at the table. The Assistant Administrator for External Affairs, Joy Wilson, is with us today.

Senator D'AMATO. Boy, is he glad he has you here today. [Laughter.]

Mr. THOMAS. Our Regional Administrator for the San Francisco region is a woman. Both of those are political positions. The regional administrator's position is an SES position, noncareer. But then as far as career ranks, we have 23 women who are in the career SES ranks.

Senator MIKULSKI. But I see none of your top staff is, except you, Ms. Wilson. One out of six. I would just say this, in looking out over the audience, it just doesn't seem to be a profile of America. I am not going to talk about the Supreme Court decision and your Agency, as we could talk about all agencies.

But, you know, the Environmental Protection Agency is one of the really new fields that have emerged over the last two decades, and in terms of encouraging people to really think about careers and opportunities in our society, we would like them to look to fields such as yours as possibilities.

We would hope that you would review your policy and I would like to see those numbers.

Mr. THOMAS. We would be pleased to provide that, Senator. I must say we feel that for both women and minorities, we are making progress in EPA to move the numbers upward.

Over 30 percent of our professional staff are women and minorities at this point in time; nearly 15 percent of our senior executive service are women and minorities. When we look at our latest candidate class for senior executive service, over one-third are women and minorities.

We are trying to move the numbers upward, and I feel that the track record of the Agency has been a good track record over the last several years. But we would be pleased to provide all the numbers for you.

[The information follows:]

STATUS OF WOMEN AND MINORITIES IN EPA

Women and minorities held 52 percent of all positions at EPA in fiscal year 1986, up 1 percent from fiscal year 1985. The following charts display their representation by occupational category and grade level.

	Total work force	Women/minorities	
		Number	Percent
OCCUPATIONAL CATEGORY			
Senior executive service	230	32	14
Professional	5,757	1,780	31
Administrative	3,370	1,824	54
Technical	864	627	73
Clerical	2,202	2,151	98
Total	12,423	6,414	52
GRADE LEVEL			
Senior executive service	230	32	14
13–15	4,228	1,094	26
9–12	4,699	2,332	50
1–8	3,266	2,956	91
Total	12,423	6,414	52

RADON RESEARCH

Senator MIKULSKI. Senator Lautenberg, I know you have just come in, but do you have any particular questions?

Senator LAUTENBERG. If I may, Madam Chairman.

Lee, I assume you haven't moved since I left here yesterday.

Mr. THOMAS. Been here the whole time, Senator.

Senator LAUTENBERG. I love that kind of devotion to duty.

In title IV, Superfund, Congress put in place a comprehensive radon program. Now, EPA is the lead agency in that program for both research and mitigation efforts. Yet the administration responds by proposing cuts at EPA's radon research budget, about $1.3 million, and increases DOE's rate on research budget by about $10 millon.

Now, if DOE has 10 times your funding for radon R&D in 1988, does not that mean, in substance, that the lead on radon research has been transferred from your Agency to the Department of Energy?

Mr. THOMAS. No, Senator. We had a good discussion, I thought, yesterday of this issue of where we were going with radon and radon research. From my point of view, we have made very good progress over the last year and a half in directing EPA's responsibility, our radon program, exactly where it ought to go, which is trying to deal with the issue of how much of a problem we have in the field and to provide as much information to the public as possible. The EPA research program, particularly over the last couple of years, has largely been directed toward practical research in mitigation effects—how, in fact, do we deal with the problem of radon in the homes?

We have completed, as you know, a number of home demonstration projects last year and are working on a number of additional ones this year—Pennsylvania, New Jersey, New York, and a number of other places—to show we can mitigate the effects of radon.

Now, at the same time, over a considerably longer period of time, DOE has had a health research program as a result of their overall radon program. The problem was identified under their weatherization

program a number of years ago. Increased weatherization lead to the increased level of radon in homes.

To me, it has not been a turf issue of who is in the lead, but more importantly, who is doing what. I feel that EPA is going forward, in fact, and doing the job that we have been given to do. If you look at our radon budget you will see that there is a substantial increase in field personnel for 1988 in this budget.

We have completed a lot of home research work that we were doing with contractors to show how we could reduce radon levels, and now we are trying to increase personnel in the field to get that information out to the public, particularly in states that are not as aware as Pennsylvania, New Jersey, and New York of the problem. We are surveying more and more states around the country.

Senator LAUTENBERG. The fact that the field force has been increased, I think, Lee, still, in my view, evades the initial intent here. That is, we think that your Agency is the one best equipped to do the research. You know what happens if things are being done on too many fronts; coordination starts to get misdirected. I think we, in fact, lose a large part of the opportunity to make this more efficient.

I see problems in your radon budget that tells me that you are not going to be able to do the research; you may be getting some of the demonstration projects in place, but not really digging far enough into how we deal with the problem of radon.

Your radon-related programs are going to be cut by eight full-time equivalents and $1.4 million; correct?

Mr. THOMAS. Yes, sir.

Senator LAUTENBERG. Won't those cuts result in fewer demonstration projects?

Mr. THOMAS. They will; there is no question about it.

Senator LAUTENBERG. Therefore, that is going to commensurately require an increase in the time needed to complete the research that would come as a result of that.

Mr. THOMAS. We don't think it will do that. What we have tried to do is take a number of different locations, a number of different home types and do the demonstration projects to show not only how we can modify the radon levels in the home, but continue to work and see how it can be done in different kinds of structures at lower costs.

At the conclusion of this year, we will have done over 100 different types of homes that will give us the basis for concentrating our efforts on getting information out into the field.

We are doing a lot now. We really want to concentrate as much of our efforts as possible on getting information out, completing the surveys with the states, providing as much public information as possible, including this homeowner information so that they can modify their homes.

Senator LAUTENBERG. How many homes will have been subjected to a demonstration?

Mr. THOMAS. Craig, do you have the specific numbers, or Vaun?

I don't have it right in front of me, Senator, but I will be glad to give it to you.

Senator LAUTENBERG. The number is what—100?

Mr. THOMAS. Yes; over 100 by the end of 1987.

[The information follows:]

As of December 1986, 55 existing homes had been tested; 135 homes will be tested by December 1987 (110 existing and 25 new homes).

RADON RESEARCH

Senator LAUTENBERG. Is that going to be enough of a sample for us to really understand the problem fully? We are looking at the potential of millions of homes expored across the country.

Mr. THOMAS. The potential.

Senator LAUTENBERG. It is suggested that New Jersey could have at least 250,000 homes thought to be exposed. We know that it exists in many states across the country.

Your budget plans seem inconsistent with the problem.

Mr. THOMAS. Senator, it is certainly open to a good, legitimate debate.

Senator LAUTENBERG. I thought we had that last year.

Mr. THOMAS. I think that we have done a substantial number of homes. We put a homeowner's guide out. We need to do some more, but I think that the matter of how many different homes and how much replication you want, different people can look at it different ways. I don't think there is any question about that.

Senator LAUTENBERG. Lee, you stick by the fact, I think, that suggests that EPA's radon budget is adequate. You believe that that is the case. But is it not true that the Agency has already missed a couple of deadlines in the new radon laws, submitting by February 1, section 118(K) report on demonstration projects, and submitting by January 17, a 403(D) report on EPA's research plan?

Mr. THOMAS. One of the reports is incorporated in our overall indoor air report and is on a schedule to be submitted shortly as we have discussed. As a matter of fact, I think I have written replies to the schedule and why we were taking longer to prepare that report. Basically, it is a two-phase report dealing with the overall indoor air issue and incorporating radon.

Senator LAUTENBERG. These things invariably seem to link with resources. How much did you ask OMB for radon?

Mr. THOMAS. I don't have the figures in front of me.

These aren't the figures of the Agency's request to OMB in the past. There is some reason I am hesitating to say that it was more than we ended up submitting to Congress. I don't know exactly how much more, but it was more than we ended up in this budget.

There was a discussion, and I participated in that discussion at OMB, on the issue of how much funding we needed. I emphasized to them, as I emphasized here, where I felt priority should be as far as field person-

nel and moving as much of the information as possible out to the public. I am going to have to give you the specific figure that we went to OMB with, if I can, for the record. I just don't have it in front of me.

[The information follows:]

RADON RESOURCES

The Agency request to the Office of Management and Budget for radon resources for fiscal year 1988 included the following:

	Work-years	Total dollars
Office of Air and Radiation:		
Headquarters	31.0	$4,494,400
Regional offices	24.1	1,686,000
Office of Research and Development	9.0	1,985,400
Total	64.1	8,165,800

SUPERFUND OBLIGATIONS

Senator LAUTENBERG. What we are trying to do, Lee, is reconfirm my intent and what I interpret the intent of the law that we wrote to be. It includes a vigorous radon research mitigation program, and I would like to get as much help from your Agency as we can. That includes petitioning, again, for the resources that are necessary to do the job.

Lee, I am troubled by the failure of your Agency to obligate the full Superfund appropriation for 1987. I understand that the regions have requested an opportunity to review their fourth quarter fiscal year 1987 estimates for Superfund spending. It has been reported to me that this could amount to at least $150 million of the requested carryover from 1987.

If all of the requested $150 million is provided to the regions, will you increase your 1988 request by a requisite amount?

Mr. THOMAS. Senator, allow me to have Win Porter, our Assistant Administrator for Solid Waste and Emergency Response, answer that.

Dr. PORTER. Senator, we are taking a look at that. We have the Superfund comprehensive accomplishments plan, or SCAP process, which responds to changes in each quarter as we review spending and requests.

There have been discussions with the regions about looking ahead a few quarters, since they anticipate needing more money. We have money out there now and we are certainly willing to talk about it. What I want to do is to balance all of the needs by region, as well as by type of project. I am certainly willing to review the situation and request the funds if they are needed.

We have a big program operating now. We have 400 to 500 projects going and I am trying to emphasize finishing some of these projects. There are many people who want to start a great deal of new work. I am willing to consider this, but I want to be sure that we maintain a balanced program—that we finish projects and that we start projects. I have had to talk to some of the regions regarding this situation. We must be sure we can finish the 400 or 500 projects we have going.

It is not just a resource question; it is also a management issue.

Senator LAUTENBERG. They don't have to be sequential activities.

Mr. THOMAS. Senator, if you look at this year, for instance, we will be starting work on approximately 200 new remedial sites. Win's point is a good one, I think. One of your criticisms of us is how long it takes us to conclude a project. We want our managers to start the new work, but at the same time, we want to manage the ongoing work properly. When you look at the way projects are stacked on top of each other, we end up managing hundreds of sites all over the country at one point in time. Projects are in various stages of completion. Balancing all of this work is a challenge for Win and his staff.

Senator LAUTENBERG. Has EPA increased funding enough?

Dr. PORTER. Yes, sir; I think so. Last year, for example, we had 12 new construction starts. As Lee indicated, we are going to start approximately 100 new studies this year, about 60 new designs, and about 30 new constructions.

Each element of the program is going up by a factor of five or six from last year. That is a real dramatic ramp-up.

TITLE III: COMMUNITY RIGHT TO KNOW

Senator LAUTENBERG. Madam Chairman, I have one more here and then I am all set.

I would like to follow up on the right to know. I want to explore the basis for your cost projection. Does the Agency have a projection on how many facilities will be covered by title III reporting requirements? Do you have specific numbers on that?

Mr. THOMAS. I don't have the specific numbers in front of me.

Jack, do you have them?

Dr. PORTER. I don't have the specific numbers in front of me, but recently my staff put together an estimate of how many people will be subject to the various reporting requirements. It is substantial. It can reach the millions depending on how low the reporting thresholds are.

Senator LAUTENBERG. Do you have any idea how many people you will be regulating? Do you have any feel for what size staff you might need to do this?

Dr. PORTER. We are currently trying to determine that. We are doing a significant amount of planning right now, and I have had an extensive dialog, and so has Jack Moore, with the states and the regions.

As Lee indicated yesterday, people around the country are very concerned about how we implement this program. That is exactly what I am trying to ascertain now. We have to approach this matter of reporting requirements in a very intelligent manner.

For example, the material safety data sheets, we are trying to think of ways of assuring that people can, in fact, obtain the information, but without creating an overwhelming amount of paper. We are spending a great deal of time thinking about how best to convey this information to the local planning districts and commissions in a way that is meaningful. After resolving that, I will be better able to come to grips with the issue of staff resources.

Mr. THOMAS. I don't think there is any question, Senator, that a large part of our responsibility in this regard is to prepare a good reporting format. This, in fact, we have already proposed. We then must try to ensure that information is available to industry, as to how that format is to be used and submitted.

I think we are talking about something similar to our overall chemicals program, because we are estimating that potentially millions of businesses are going to be reporting.

Senator LAUTENBERG. Are there 11 full-time people or equivalents that are designated to do the enforcement job? Is that the number.

Mr. THOMAS. For the enforcement piece of it, that number is correct. The total number of work-years we requested for title III was 83 FTE for fiscal year 1988.

Senator LAUTENBERG. Is it possible that 11 people doing enforcement cover the nation sufficiently?

Mr. THOMAS. Let me have Jack respond to that.

Dr. MOORE. Senator, our expectation in fiscal year 1988 is that the majority of the effort of those 11 people won't be so much in traditional enforcement activities, but will focus instead on technical assistance and, as needed, giving guidance during the information reporting cycle.

We believe there is going to be a tremendous learning curve as we put out a new reporting instrument that has to be completed and submitted in an orderly fashion by so many people. Most likely it will be in late 1988 or 1989 that we will begin to enforce against scofflaws, or someone doing something erroneous, as opposed to somebody in 1988 who has the right intention but may not be going about it the right way.

Senator LAUTENBERG. We don't want to delay getting this program underway.

Thank you, very much.

Senator MIKULSKI. We thank the Senator from New Jersey for those excellent questions. I think as a fellow member of the authorizing committee, your comments on the implementation of the Superfund were identical to those sentiments expressed by ourselves. I think we would like to note that Senator Lautenberg's questions really affects those of pretty much the full authorizing committee.

Senator Grassley.

USING ETHANOL BLENDS IN OZONE NONATTAINMENT AREAS

Senator GRASSLEY. Mr. Thomas, I really don't have a question. I have a statement I want to make, and the bottom line of the statement is to ask you to look into a possible study that we hope will help with the work that you are now being called to do with carbon monoxide nonattainment areas and the ozone nonattainment areas.

As a result, you are considering control strategy. It is important to address the environmental problems presented by carbon monoxide and ozone buildup, but it is also important that these environmental goals

are achieved through the least possible regulatory burden. This would be in line with the President's Executive Order 12–291.

This order has as its primary goal for agencies a set of regulatory priorities with the aim of maximizing the aggregate net benefits to society, taking into account the condition of the particular industries affected by regulation. I won't go through the rest because I know you know it very well, and it is a very major part of your administrative process.

To my knowledge, the current efforts to control carbon monoxide and ozone buildup are not able to be accomplished at the levels of emission that are necessary to meet what we consider environmentally acceptable. But, as you know, there also exists reliable scientific evidence that indicates that ethanol blends and gasoline effectively reduce carbon monoxide and hydrocarbon emissions in U.S. automobiles. Furthermore, the use of neat alcohols in commercial transportation fleets have been shown to significantly reduce ozone buildup.

Automobile emissions of hydrocarbons and carbon monoxide are largely to blame for these pollution problems. Now studies by the California Air Resources Board and the Colorado Oxygenated Fuels Task Force have found linkage between the reduction of these pollutants and the use of alcohol-blended gasoline which contains higher amounts of oxygen.

What I am requesting of you today is that you would give very serious consideration to the option of mandating the use of alcohol blends in nonattainment areas as a primary carbon monoxide and ozone control strategy. These initiatives would benefit not only our goal of controlling the pollution, but it would also benefit many sectors of the economy. And since I am from Iowa, I am not going to go through the rest of my statement on that to explain to you that there is also an economic purpose for my suggesting this. That is to be very candid.

But let me suggest to you that you have a responsibility in this area that you are already working on. We have some studies by states that suggest possible alternatives in this area. You also have the President's regulatory guidelines to meet goals and to give you wide leeway in how to meet those goals.

In short, I would like you to make this option of mandating the use of alcohols in nonattainment areas as a primary control strategy, not only for the benefit of our environment, economy, and the federal budget, but also to carry out the President's executive order.

So, all that I am asking you to do is for you to follow up on my request, and I would like your people to keep me apprised of progress toward this end.

Mr. THOMAS. We would be pleased to do that, Senator. As a matter of fact, we have a major review underway on alcohol fuels, including methanol, as a component of our strategy for dealing with ozone and carbon monoxide problems. We would be pleased to keep your staff and you informed on that review.

I anticipate that some time over the next 4 to 6 months we will be reviewing the various options that may be available to us. I will share with you the potential positive result that could come from that review.

USING ETHANOL IN OZONE NONATTAINMENT AREAS

Senator GRASSLEY. Has there been a lot of publication of your study in this area? I have not read it in the literature.

Mr. THOMAS. Probably not, although we have had a good bit of dialog with the Oxygenated Fuels Association and others on the issue of ethanol blends over the last couple of years, but more in the context of a negative view from them. They were concerned that in our control of volatility of gasoline, we may put them out of business as opposed to put them in business.

But our review now is in conjunction with the Vice President's task force from a point of view of competitiveness. We have had discussions with them, and also from the overall review we have been doing of ozone nonattainment and specifically the use of neat methanol as an alternative fuel. We have worked with the city of New York on a bus experiment using methanol, with General Motors, and we are also having discussions with the state of California about potential fleet operations.

We also are clearly getting into it as a result of a number of individual cities and states looking at ethanol blends, such as Denver, Colo., as a potential for meeting their carbon monoxide problem, as a part of their state implementation plans.

Senator GRASSLEY. One other economic factor that I didn't highlight is that our dependence upon petroleum would be lessened to the extent that we would go this route.

Thank you, Madam Chairman.

Senator MIKULSKI. Thank you, very much.

Thank you, Mr. Thomas. This concludes the subcommittee's questioning of you at this time.

We welcome your responses for the record.

SUBMITTED QUESTIONS

[The following questions were not asked at the hearing but were submitted to the Agency for response for the record:]

Questions Submitted by Senator Proxmire

OMB REDUCTION OF STAFF REQUIREMENTS

Question: OMB reduced by 50% your proposed staff requirements for organizational analysis and management reviews because it was duplicative of work conducted by other offices. That's a fairly significant reduction. Did you appeal this with OMB or did the cut remain in the final budget?

Answer: In response to our FY 1988 Passback, the Administrator asked OMB for the flexibility to move/realign resources among program elements in order to accomplish EPA's mission most effectively at the funding level granted by OMB. That flexibility was granted, and as a result the cut did not remain in our FY 1988 request to Congress.

Question: Why didn't you pick this duplication up at your end?

Answer: We do not believe there is a duplication of effort.

IMPLEMENTATION OF OMB'S ADMINISTRATIVE STAFF REDUCTION

Question: OMB also reduced by 14 the number of administrative staff requested in the Office of Administration and Resources Management. OMB stated - and I quote - "This reduction is the first installment of a three-year program to bring EPA administrative staff down to the general government-wide target of 12% ... additional reductions of 60 FTEs will be made in each of the next 2 years." The cuts will be at the agency's discretion and could include administrative staff in their regional offices. How would you implement OMB's reduction in the fiscal 1988 budget? Will there be any reductions in region?

Answer: Our FTE reduction in FY 1988, which was a result of the OMB Passback, was taken against both Headquarters and Regional program elements. Each program element within Headquarters and the Regions took its prorated share of OMB's reduction.

LOW PRIORITY AUDITS AND INVESTIGATIONS

Question: For the Office of Inspector General you are requesting $14.9 million supported by 219.7 total workyears. This represents an increase of $203.8 thousand over current estimates and a reduction of 2.7 workyears. The justifications indicate that the staffing decrease "reflect reductions in audit and investigative efforts of a lower priority." Tell us what audits and investigations would be shelved under the request?

Answer: We will take 1.7 workyears from our internal and management audit plan because, in terms of priority, the Agency's greatest need for expanded audit services is in the construction grants area. We will also take 1 workyear from our investigative program.

Through the reduction in our internal and management audit plan we are planning to postpone to some later time reviews of pesticides and toxics and hazardous waste enforcement programs.

The reduction in our investigative program will not provide an initiative to examine possible antitrust violations by Architecture and Engineering firms.

Question: Was it your decision or that of OMB to cut staff in the Inspector General's Office?

Answer: The OIG made its own request for additional resources to the Agency. However, during negotiations with OMB, the Agency was reduced. As a result of the Agency reduction and internal Agency negotiations, the IG sustained a small reduction in the Salaries and Expenses appropriation from FY 1987 to FY 1988.

RESOURCES VS. ADEQUATE OVERSIGHT OF THE SUPERFUND

Question: Mr. Martin, the reauthorized Superfund program will have a spending level more than five times the size of the original program. The Agency now has more than 2,700 authorized employees to administer this program. The Inspector General's office has only a total of 53 employees to monitor this program nationwide. Can you provide adequate oversight of the Superfund with the resources you've been given?

Answer: We received 18 more people in 1987 to bring us up to the current total of 53. Also, we have received adequate extramural funds. We will provide the maximun oversight possible with these resources.

EXCESSIVE SPENDING FOR EMERGENCY CLEANUP

Question: A recent audit report by the Inspector General's office described excessive EPA spending for the emergency cleanup of hazardous wastes. In your judgement, is the Agency taking adequate steps to ensure that this serious problem is corrected?

Answer: The Agency has taken a number of steps which should go a long way towards correcting the problems we found. It has developed a removal contracting strategy which will greatly increase the number of removal contracts and handle procurement differently, depending on the amount of lead time available. It is increasing its reliance on cost analysis to determine the reasonableness of prices offered by prospective contractors. It is also tightening contract language and improving contract administration. We are in the process of evaluating the Agency's detailed response dated April 13, 1987, to our audit report.

AUDIT OF CONSTRUCTION GRANTS

Question: Mr. Martin, EPA will fund $20 billion under the Water Quality Act of 1987 for construction of sewage treatment facilities and other projects to control water pollution. Have you been able to keep up with final audits of completed construction grant projects or do you have a backlog? If you have a backlog, is it growing?

Answer: We have received final audit requests for many projects that we have not yet been able to assign. In 1983, the unassigned work amounted to 359 projects. In 1988, we project the unassigned work will increase to 760 projects.

In addition to the final audits, we also need to perform preaward and interim audits of major EPA grantee organizations. Historically OIG audit efforts in this program have resulted in a payback of $12 for each one dollar of resources provided.

RETURN ON AUDITS

Question: I read somewhere that audits done by the Inspector General return about $12 in cost to the agency for every dollar expended on the audits. Is this correct? If so, it's a sound investment of the government's resources.

Answer: Our construction grant audits do provide an average return of about $12 in cost to the agency for every dollar expended on the audits. We are especially proud of this return on investment.

BUDGET AND STAFF FOR GROUNDWATER CONTAMINATION

Question: I have a few questions concerning the request of $72.9 million for the pesticide program, a small increase of $3.6 million over current estimates. In recent years, there's been much concern about groundwater contamination and adequate evaluation of bioengineered pesticide registration applications. How have your budget priorities changed to meet these new challenges? How many staff are specially qualified to review the risks and benefits of bioengineered pesticides?

Answer: Recent research, some of it performed by the U.S. Geological Survey, has shown that microorganisms can be transported in aquifers. This is a consideration in assessing the dispersal of bioengineered pesticides, but is only one of many factors that must be considered in a microbial pesticide risk assessment. The Agency's Office of Pesticide Programs hired three additional scientists and reorganized existing staff in 1984 to meet this challenge. Two of these scientists are biotechnology coordinators to review submissions and develop policy. This staff nucleus draws, as necessary, upon other scientists in

a variety of disciplines. A Biotechnology Science Advisory Committee has been formed to allow us to formally present issues to expert scientists from outside the Agency.

A Groundwater Team was formed by the Agency in 1984 in response to the growing concerns over the potential for ground water contamination by normal use and leaching of pesticides. Major pesticide in groundwater projects are underway at EPA's Office of Research and Development (ORD) Laboratories in Athens, Georgia, with support and cooperation from the ORD laboratory in Ada, Oklahoma (whose primary mission is in overall groundwater research). Briefly, the Athens Environmental Research Laboratory has been conducting a comprehensive field heavily involved in pesticide environmental kinetics. Another major effort has been the National Pesticide Ground Water Survey (NPGS), which is a joint effort between the pesticide program and the drinking water program.

The Agency also is developing a strategy document mapping out the planned approach to regulating pesticides and fertilizers which have the ability to reach groundwater. Tentatively, the strategy will cover such issues as the goal for protection, what waters to protect, and the Federal and State roles for achieving the goal. The Agency expects to issue the stragegy for public comment early in the summer of 1987.

These administrative remedies will help expedite the cancellation process. The Agency is considering alternative means of expediting the process, such as immediately issuing a notice of intent to cancel when certain risk criteria are met. This potentially would offer the opportunity to significantly shorten the special review process or to eliminate the special review process altogether.

REAUTHORIZATION SPECIAL REVIEW PACE

Question: I am very concerned about the slow pace and extreme cost of the pesticide special review process. This process, which was designed to identify the most hazardous and widely used pesticides, now takes between 4 and 7 years. In light of the criticism in last year's Synar report, what action has the Agency taken to speed up this process and reduce its cost? For example, pesticide ingredients such as EPN, DDVP, and EBDC have taken years longer than expected to review.

Answer: Over the last few years the Agency has taken several steps to speed up the Special Review process and, at the same time, reduce its cost. First, EPA evaluates whether the data are sufficient to complete a Special Review and, where data are insufficient, require registrants to generate the data so that the information will be available before a preliminary or final

determination is made. Thus, there are no long delays in the Special Review process to await the generation of data necessary to conclude the review. Second, we are making increasing use of combined steps in the process, such as Notices of Special Review and Notices of Preliminary Determination (PD 1 and PD 2/3), to shorten the total length of time involved in the review. This combination of steps is possible when the benefits assessment is either already available or can be developed quickly.

Increased focus on the process also has assured that regulatory issues are raised as early as possible to higher level management in the Agency. Special Reviews are now scheduled for two years if a Notice of Special Review (PD 1) is issued separately from the Notice of Preliminary Determination (PD 2/3), and one year if these two documents are combined. For example, the diazinon Special Review was initiated in January 1986 and was concluded in September 1986. Additionally, we have placed strict deadlines on the conduct of cancellation hearings.

The EPN, DDVP, and EBDC Special Reviews were all concluded several years ago. However, in each case there was insufficient information for the Agency to make a final determination. The Agency issued data call-ins for the necessary data. For EPN and the EBDCs, sufficient data are now available for the Agency to initiate appropriate regulatory review, and such review has already been started. For DDVP, the key study which is needed is an oncogenicity study which is being conducted by the National Toxicology Program. That study is due to be received in the summer of 1987 and the Agency is due to complete its reassessment of DDVP in the fall of 1987.

These administrative remedies will help expedite the cancellation process. The Agency is considering alternative means of expediting the process, such as immediately issuing a notice of intent to cancel when certain risk criteria are met. This potentially would offer the opportunity to significantly shorten the special review process or to eliminate the special review process altogether.

REREGISTRATION

Question: Last year GAO found that not one pesticide had enough data submitted to EPA for complete reregistration. What has been done to improve the process in light of GAO criticism? How many do you expect to complete in FY 1988? This process, which is the heart of pesticide regulation, was originally slated to be completed in 1977, but more recently the Agency has stated it would take sometime in the next century to complete. What is your most accurate estimate? How would your answer be affected by the reform legislation which was before Congress last year? Could you live with its dates?

Answer: In the first stage of the reregistration program, the Agency evaluates available data to identify data gaps and establish an interim regulatory position. Completion of the reregistration program for an active ingredient entails performing comprehensive evaluations of the additional data in order to issue Final Regulatory Standards and Tolerance Reassessments (FRSTRs). We expect to issue 5 FRSTRs in 1988, although we may increase that number, at the expense of interim standards, if a chemical-by-chemical review indicates a high probability of increased benefit from doing so. We estimate that we would issue 20-25 FRSTRs per year after the data receiving phase of the program is completed. During the data receiving phase of the program, resources would be divided between reviewing newly received data for compliance with quality control standards or characterizing adverse findings and completing FRSTRs on the chemicals that had been subject of interim Registration Standards.

For a given chemical, reregistration will be considered accomplished when all data gaps are filled, all studies have been evaluated, revised tolerances established where necessary, and all required label changes have been implemented. This entire process is time consuming. We are examining alternatives to this process. We are exploring the feasibility of selected changes to the process in 1988 to accelerate the completion of chemical data bases. This may, for example, involve a pilot program to require the regulated industry to validate existing studies and conduct new studies to replace those deemed invalid or to fill outright data gaps. We have implemented a rigorous followup system to insure that testing agreements are complied with and that the required studies are submitted on time.

The reform legislation which was before Congress last year would have permitted a major acceleration of the program. The reregistration fees would have permitted a substantial increase in resources for reregistration, although they would not have been sufficient for us to meet the deadlines specified in that legislation.

GENETIC PESTICIDES

Question: Genetically engineered pesticides hold the promise of more effective pest control, but pose a variety of policy, technical, and safety issues. These pesticides may pose environmental concerns because their public health and environmental consequences may not yet be fully known. What are you doing to develop a cadre of well-trained scientific personnel to evaluate the risks of such pesticides?

Answer: In 1984 the Agency added three scientists to its staff of in-house scientists devoted to: (a) the review of applications for genetically engineered pesticides and (b) developing proposed policies on the regulation of these pesticides. Agency

scientists at headquarters have the benefit of close cooperation and interaction with regional laboratory biotechnology scientists in Corvallis, Oregon; Gulf Breeze, Florida; and Research Triangle Park, North Carolina. In addition, there are regular consultations with recognized experts from academia to stay abreast of the field. The Agency's biotechnology team is considered to be one of the most experienced groups in the world in performing microbial environmental release risk assessments and their judgments have been supported by scientific peer review.

COST OF INDEMNIFICATION

Question: Under existing law EPA may have to pay money to pesticide manufacturers whose unsafe products get taken off the market. If the agency decides to suspend the use of alachlor, how much would you pay in indemnities? Does the need to indemnify manufacturers change the types of actions EPA will pursue? How much money has been spent on indemnities in the last 5 years?

Answer: The Agency does not have an estimate of what it would cost to pay indemnification for alachlor, in the event that alachlor were subject to emergency suspension and subsequently cancelled under FIFRA. The cost of indemnification is dependent upon the amount of stocks available at the time the suspension action is taken, and the cost of the product paid by the purchaser. The Agency has, through Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), yearly production information on each pesticide. However, at a given point in the year, the Agency does not know how much of current production is available, and how much stock from previous years is available. Information on indemnification costs is obtained after the suspension action is taken when the Agency publishes a Federal Register notice announcing that holders of stocks should submit claims for indemnification. This information is available 6-9 months after the suspension action is taken.

However, a rough estimate of the cost of indemnification of alachlor, based on eligibility of one-half of a year's production, no carry over of previous year's stocks, and no overseas sales or other uses of stocks, is in excess of $150 million.

The need to indemnify manufacturers, dealers, and holders of suspended pesticide stock does not affect the type of action EPA will pursue. The decision to suspend is based on a finding of imminent hazard, not on benefits or indemnification or disposal costs.

The only indemnification actions which have occurred in the last five years have been with 2,4,5-T/Silvex and EDB. The amount paid for 2,4,5-T/Silvex was approximately $18 million. The current amount which has been paid in indemnity claims for EDB is $2.4 million.

IMPACT OF INDEMNIFICATION ON EPA BUDGET

Question: Couldn't the indemnity on just one widely used pesticide exceed the entire pesticides budget?

Answer: It is quite possible that the cost of indemnification for one widely used pesticide could exceed the entire Pesticides budget.

INDEMNITIES FOR SPECIFIC PESTICIDES

Question: How much would you need to pay in indemnities for the following products if they were immediately cancelled in 1987: dinoseb, alachlor, linuron, benomyl, daminozide, methyl bromide and chlordane used as a termiticide?

Answer: The indemnification responsibility is assumed only when a pesticide is subject to emergency suspension (based on a finding of imminent hazard) and is subsequently cancelled. It is not triggered by ordinary cancellation. The cost of indemnification for each of these pesticides, assuming they were suspended and cancelled, can only be roughly estimated since the amount of existing stocks at the moment of suspension, the cost of purchase, and other possible uses are not known exactly. However, the following table provides some estimate of what the cost might be. The estimates assume that one-half of a year's production would be eligible for indemnification, and that no stocks are carried over from the previous year. The estimates also assume that holders of products make no other arrangements to sell it overseas, recycle it, or in other ways try to recoup some of their cost. The estimates assume an average purchase price and do not include costs of storage and disposal. These figures are from published sources.

Pesticide	Pounds of Product	Purchase Price	Indemnity Cost
Alachlor	42,500,000	$3.80/pound	$161,500,000
Linuron	4,000,000	$8.90/pound	$35,600,000
Benomyl	4,000,000	$19.50/pound	$78,000,000
Daminozide	375,000	$21.20/pound	$7,950,000
Methyl bromide	1,000,000	$1.10/pound	$23,000,000
Chlordane	7,000,000	$7.60/pound	$53,200,000

Preliminary estimates of the cost of the indemnification of Dinoseb are $30,000,000 to $50,000,000.

As indicated in testimony by Assistant Administrator John Moore before the Subcommittee on Department Operations, Research and Foreign Agriculture of the House of Representatives Committee on Agriculture on April 7, 1987, EPA believes the indemnification provision of FIFRA should be abolished and that disposal costs should not be borne by the Agency.

IMPACT OF PHASED CANCELLATION ON INDEMNIFICATION

Question: Does the Agency have authority under FIFRA to take phased cancellation actions that would eliminate possible indemnification costs? If not, will the Agency seek such authority through amendments to FIFRA?

Answer: Normal cancellation action, including phased cancellation, does not involve indemnification costs. Indemnification responsibility is assumed only when pesticides are suspended and then cancelled for posing an imminent hazard. Phased cancellation is a regulatory option available under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and has been used in several circumstances, such as with toxaphene.

CANCER THRESHOLD

Question: Is it Agency practice to use a threshold level for regulation of cancer-causing pesticides in food?

Answer: It is not Agency practice to use a threshold level for regulation of cancer-causing pesticides in food. Agency practice is to carry out a weight of the evidence review of all relevant data and categorize the oncogenic potential of the pesticide (A,B,C,D,E). Once the weight of evidence is completed the Agency evaluates the dietary exposure of the pesticide residue(s) in the food commodity. The Agency usually begins by assuming worst case conditions, such as 100 percent of the crop treated and all residues at the tolerance level. Mathematical models are then used to calculate the upper limit on oncogenic dietary risk (e.g. 2.2 incidents in one million (2.2×10^{-6})). Although the Pesticide Program has not set an acceptable level of oncogenic dietary risk, risks calculated using the above approach are considered to be minimal at 10^{-6}. If the risk generated by worst case assumptions indicates potential concern then data is obtained to determine more realistic dietary exposure.

SUSPENSION OF ALAR

Question: Did EPA reverse its decision to suspend Alar based on indemnification costs? Since there is considerable independent data on the carcinogenicity of this product, on whom is the burden of proof regarding its safety?

Answer: No, the Agency did not change its regulatory position on Alar because of any considerations of indemnification. The Agency has deferred a final regulatory decision on Alar after receiving the opinion of the Scientific Advisory Panel. The Panel's opinion was that the available carcinogenicity studies were not of sufficient quality to be used to form scientifically valid qualitative or quantitative assessments of risk.

Because of the inadequacies of the existing carcinogenicity studies, the Agency required registrants of Alar products to generate new studies for the Agency to use for risk assessments. With any pesticide, the burden of proof is on the registrant or applicant to demonstrate that it can be used as intended without causing unreasonable adverse effects. The Agency does not have authority to suspend or cancel a pesticide because of the lack of data.

RESEARCH FUNDS FOR HEALTH EFFECTS OF PESTICIDES

Question: The Agency requests $3.9 million in FY 1988 for research on pesticide health effects, or about the cost of three chronic bioassays. Given the extremely rapid rate of advance in the toxicological sciences, the need to develop neurotoxicity guidelines, questions regarding the synergistic effects of pesticides and fertilizers in water, and growing public concerns about the health effects of pesticides, why is the Agency not seeking increased research funds in this area?

Answer: We feel this amount of funding is appropriate. It should be noted that the Agency is presently conducting research in the area of neurotoxicology. Of the $3.9 million allocated for pesticides health research, 23% is used for developing neurotoxicity testing protocols. This research supports the development of testing guidelines for industry to follow in registering pesticide products.

SPECIFIC RESEARCH

Question: What specific research does EPA have underway, or know of, addressing the synergistic effects of multiple herbicides commonly found in drinking water in parts of the country?

Answer: The Agency does not currently conduct specific research which is designed to assess the synergistic effects of multiple herbicides commonly found in drinking water.

To a great extent, the Agency's research efforts are focussed on regulatory needs identified by the various program offices. Both the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA) are oriented toward a one chemical one use approach. Because of this, most Agency research deals with pesticides as single chemicals, not in combination exposures.

It is important to note, however, that the Agency has proposed in its FY 1988 budget an initiative to develop a comparative risk assessment procedure for complex mixtures of chemicals.

Question: What specific research does EPA have underway, or know of, addressing the synergistic effects of mulitple herbicides and other pesticides found in water?

Answer: The Agency does not currently conduct specific research concerning synergistic effects of multiple herbicides and other pesticides found in water. The Agency has dealt, in a limited fashion, with exposures to mixtures of organic chemicals. For example, a draft report proposes interim procedures for estimating risks associated with expsoures to mixtures of chlorinated Dibenzo-p-Dioxins and Dibenzofurans. Exposure matrices are in the form of bioassays and not necessarily water related.

Question: What specific research does EPA have underway, or know of, addressing the synergistic effects of triazine herbicides with nitrogen-based fertilizer contaminants in water (please provide the subcommittee a synopsis of existing scientific knowledge on this topic, with brief references to major studies in the literature)?

Answer: The Agency has not focused any studies on triazine herbicide synergisms with nitrogen-based fertilizer contaminants in water. As far as can be determined the Agency has established no literature reference files on this type of problem.

Question: What specific research does EPA have underway, or know of, addressing the synergistic effects of other combinations of pesticides, fertilizers, and other ubiquitous environmental contaminants?

Answer: The Agency does have some information on combinations of exposures. Synergistic and additive effects are present in laboratory testing. We do not know how much these combinations contribute to overall risks to humans or the environment.

SYNERGESTIC EFFECTS

Question: Does EPA view the possibility of synergestic effects to merit scientific inquiry? If not, why not?

Answer: The EPA does view the possibility of synergistic effects to merit scientific inquiry. In September, 1986, EPA published "Guidelines for the Health Risk Assessment of Chemical Mixtures" (51 FR 34015) which acknowledged that most environmental contamination involves concurrent or sequential exposures to a mixture of compounds. These guidelines state that "the prediction of how specific mixtures of toxicants will interact must be based on an understanding of the mechanisms of such interactions." Information suggesting the potential for synergistic effects among components in a mixture must be assessed in terms of both its relevance to subchronic or chronic hazard and its suitability for quantitatively altering the risk assessment.

EXPLORATORY STUDY ON AN ENVIRONMENTAL RISK RATING SYSTEM

Question: The FIFRA reauthorization bill that passed both Houses of Congress last year contained a provision calling for an exploratory study by the National Academy of Sciences (NAS) on an environmental risk rating system for use at the farm level by cooperative extension service employees, and others asked to provide technical assistance to farmers regarding the selection of the safest possible pesticide for a given pest control problem. Did EPA support this provision last year, and do you now? Are there adequate funds in the budget request for this study, and do you intend to initiate it in FY 88?

Answer: Last year's H.R. 2482 contained a provision which would have directed the Administrator to contract for a study to determine the feasibility of establishing an environmental risk rating for pesticides used in the production of agricultural products. Our budget request does not reflect funds to be allocated to NAS for this purpose.

In general, we question the advisability of legislation which designates that specific studies be conducted.

REDUCTION OF DIETARY CANCER RISK

Question: Using routine EPA worse-case assumptions in carrying out dietary exposure estimates, how many pesticides would have to be cancelled to reduce total maximum dietary cancer risk -- as best the Agency can estimate it with current methods and available data -- by 25%, 50%, 75% and 100%.

Answer: The question implies an artificial precision, especially since many existing chemicals have inadequate data bases and EPA is in the midst of conducting reregistration and tolerance reassessment reviews on old chemicals. The Agency does not at present have adequate data to answer this question in a valid way. However, the following points are relevant:

1.) Although in theory it may be scientifically reasonable to add up oncogenicity risks, in reality it does not make sense to add up tolerances and call this a global oncogenicity risk. For example, there are 91 separate tolerances for tomatoes in 40 CFR Part 180. It is unrealistic to assume that any tomato has all of these chemicals present.

2.) Further, tolerances are not valid estimates of potential exposure, and use of this number always overstates risk. The reasons for this are that tolerances are by definition enforcement numbers, and are not levels of residue that are expected to be encountered on food. A valid assessment of exposure to oncogens would require knowledge of the average amounts of pesticide present in treated crops, the amount of usage of each pesticide

(i.e., % of crop treated), the effects of processing (washing, trimming, canning, etc.), and the effects of cooking.

In general, such information is not fully available. As a result, many of EPA's estimates of exposure are generally intended to be used as "worst" case estimates to screen for possible exposures of enough concern that they merit further analysis. It must be recognized, however, that in using a tolerance-based "worst case" scenario, one is actually constructing a probabilistically impossible scenario. For example, estimates of exposure based on residues in 5 different foods, each at the upper 99th percentile of exposure, would have a probability of actually occurring together only 1 out of 10 billion times. Finally, assuming such worst-case exposure estimates were used to cancel a pesticide, it would be misleading to speak of reduction in overall hazard without considering other kinds of potential health effects associated with alternatives.

Finally, even if such worst-case exposure estimates were used to cancel a pesticide, it is not at all clear that any net reduction in overall hazard would occur. If one accepts the premise that pesticides are used on food only in response to a particular pest pressure or consumer "need", then cancellation of any use is likely only to result in replacement of one toxic chemical with, perhaps, an even more toxic pesticide. This relationship is particularly true of the fungicides, for which by virtue of the mechanisms of toxicity and (frequently) post-harvest applications, the potential risks of oncogenecity tend to be high (based on tolerances). Therefore, cancellation of any fungicide is reasonable only if an alternative exists with a lower estimate of risk (oncogenic potential). Since the data bases for food use chemicals will not be complete for some time, such estimates of the risk of substitutes are often unavailable.

For these reasons, the request to determine how many registrations should be cancelled to lower oncogenic risk through the diet by certain percentages is not answerable in a scientifically valid manner.

CONTESTED REGULATORY ACTIONS

Question: How many contested regulatory actions has the Agency completed in each of the last ten years? Please provide the basic facts on each action, and the result of the action.

Answer: A "contested regulatory action" under the Federal Insecticide, Fungicide, and Rodenticide Act is interpreted to mean a filing or request by one or more registrants for a hearing before an Administrative Law Judge or a State or Federal court contesting a regulatory action (cancellation, suspension,

restriction of uses) on an active ingredient or a group of active ingredients. Under FIFRA, such hearings can be requested under Section 3 and Section 6.

Section 3 hearings (request for information or Data Call In) -- 41 hearings have been requested in response to the Agency's issuance of a Notice of Intent to Suspend because the registrant failed to provide the information requested. All of these proceedings have been settled prior to the actual hearing. The settlements were based on the registrant's agreement to provide the requested information or to take other appropriate steps.

Section 6 hearings (cancellation hearings) -- During the past 10 years there have been Section 6 cancellation hearings on the following chemicals, all of which have resulted in cancellation or regulation of all or most of the registered uses: Chlordane (1978), Heptachlor (1978), DBCP (1979), 2,4,5-T/Silvex (1979-85), Toxaphene (1982), Wood Preservatives (1983-84), EDB (1984), and Strychnine (1984-87). The hearings on diazinon and dinoseb are currently scheduled for 1987.

Question: Given the level of resources requested in the budget proposal, how many contested regulatory actions on major products could the Agency impose and adequately defend in FY 1988? Could the Agency tackle 4, 6, 12, 20 major active ingredients in the same year?

Answer: Since no Section 3(Data Call In) hearings have been held yet, our answer is focused on Section 6 (or cancellation) hearings. In FY 1987, the Agency will handle an estimated two such hearings. In 1988, the Agency estimates that it can handle approximately the same number of hearings as in 1987.

COMPLETION OF RE-REGISTRATION ACTIONS

Question: The subcommittee is interested in the Final Registration Standard and Tolerance Reassessment (FRSTR) Program. We note you have completed only <u>two</u> such actions; and propose to complete five in FY 1988. Is it fair to say that by the end of FY 1988 the Agency will have completed re-registration actions, with the benefit of adequate databases and final scientific assessments, on only seven pesticides? If not, what is the correct number, and how many currently registered pesticides are there which will need FRSTRs over the next decade?

Answer: The Agency now projects completion of eight FRSTRs by the end of FY 1988 (one more in FY 1987 and 5 in FY 1988). The Agency plans to issue 5 FRSTRs per year beginning in FY 1988. Interim Registration Standards have been issued on 150 chemicals to date. If Interim Registration Standards are issued at a rate of 20 per year, as planned beginning in FY 1988, there

will be another 200 potential FRSTR candidates at the end of ten years. The actual number of chemicals with complete data bases at the end of ten years would be somewhat less, as many of the chemicals would still be in the data development phase, which can take up to four years. Additionally, experience to date indicates that approximately 7 percent of the chemicals go off the market in response to the Registration Standard. We expect, however, that this percentage will drop as separate on-going data call-ins require registrants to decide whether to invest in continued registration of their chemicals. Nevertheless, we estimate that we will need to perform FRSTRs on less than 100 percent of the chemicals that are being reviewed in the Registration Standards program.

Our current level of resources enable us to perform 25 comprehensive chemical evaluations per year. Thus, in the currently structured program an increase in the rate of FRSTR production would result in a decrease in the rate in Interim Registration Standard production.

PRIORITIZING REGULATORY ACTIONS

Question: Does the Agency now have an adequate scientific basis to prioritize regulatory actions on major food use pesticides to achieve, for example, a given percentage reduction in cancer risk from pesticides in food?

Answer: The Agency, in general, evaluates the adverse effects of pesticides based on chemical specific data. However, in the Registration Standard process the Agency has introduced a clustering concept which assures that the evaluation of chemicals principally used on major food and feed crops occurs about the same time. Thus a higher priority for regulatory action can be given to those chemicals within a cluster which appear to pose the most significant cancer (or other) risk. A prioritization of all cancer risks and regulatory activity across all foods and all chemicals cannot be answered in a scientifically valid manner as discussed in response to a previous question concerning the reduction of dietary cancer risk. Direct comparison among chemicals is fraught with significant uncertainities. Thus the prioritization by use (insecticide, herbicide, fungicide) and major food complex (corn, wheat, vegetables) seems more justified.

PESTICIDES -- REGISTRATION FEES

Question: Many people contend the fines under FIFRA are far too low, and are grossly outdated. When were they set? Is the Agency satisfied with the current fines for violations of FIFRA?

Answer: The current penalty structure in the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) was enacted by Congress in the 1972 amendments to FIFRA, known as the Federal Environmental Pesticide Control Act of 1972. In 1986, both the House and the Senate Agriculture Committees passed amendments to FIFRA that would have increased penalties five-fold, increased the Agency's inspection authority, and included additional unlawful act provisions. The Agency wholeheartedly supported the above amendments. As recently as April 7, 1987, in testimony before a subcommittee of the House Agriculture Committee, Dr. John A. Moore, Assistant Administrator for Pesticides and Toxic Substances, again supported strengthening FIFRA enforcement.

Question: What are the basic fines, and what was the approximate total amount of fines imposed in 1984, 1985, 1986 or other recent years for which data are available?

Answer: Registrants, wholesalers, dealers, retailers and distributors of pesticides, and commercial applicators of restricted use pesticides, may be fined administratively up to $5,000 for each offense, or may be charged with a criminal misdemeanor and fined up to $25,000 or imprisoned up to one year, or both. Persons who apply pesticides for hire, e.g., a pest control applicator, may be fined no more than $500 for the first offense and $1,000 for each subsequent offense. Private applicators of restricted use pesticides (mostly farmers) and other persons not already listed above, must first receive a warning notice for any violation not criminal in nature. For any subsequent violations the maximum penalty is $1,000. Criminal violations are misdemeanors with fines of not more than $1,000 or imprisonment up to 60 days, or both.

The number of FIFRA cases closed, the total amount of monetary penalties collected, and the average monetary penalty, respectively, follows:

	Cases Closed	Total $	Average $
FY 1984	269	$521,102	$1,937
FY 1985	206	320,201	1,555
FY 1986	208*	301,266	1,448

* The Agency opened 314 cases in FY 1986 but only 208 cases have been closed to date.

Question: Please contrast the major fines under FIFRA to comparable fines under the Clean Air Act, Superfund, and the Food, Drug and Cosmetic Act.

Answer: The Resource Conservation and Recovery Act (RCRA), the Clean Air Act (CAA), the Federal Water Pollution Control Act

(FWPCA), and the Toxic Substances Control Act (TSCA) contain provisions for penalties up to $25,000 per day of violation. The CAA and the FWPCA also have provisions for fines not to exceed $10,000 for making false statements or reports to EPA. Fines under the Federal Food, Drug, and Cosmetic Act (FFDCA) have a maximum of $10,000. In contrast, FIFRA's top penalty is $5,000 per offense.

Question: Has the Agency proposed in recent years, or does it intend to propose, changes in the level of fines under FIFRA? If so, which fines, and to what new level will they be raised?

Answer: Since Congress has proposed amendments to FIFRA in 1986 and 1987 with enhanced penalties, the Agency has not felt it necessary to also propose changes in the level of fines under FIFRA. The new penalties in the amendments before Congress would have increased fines five-fold to $25,000 per offense from $5,000. Criminal penalties would have gone up to $50,000 from $25,000.

Question: How are fines treated? Do they go to the general treasury? Do they go to EPA?

Answer: All fines go to the general treasury.

PESTICIDE REGISTRATION FEES

Question: Please update the subcommittee on the status of imposing fees for regulatory actions under FIFRA. - What fees are now imposed, and how much was collected under each category in recent years?

Answer: No fees are now imposed under FIFRA. However, fees for processing pesticide tolerance petitions under the Food Drug and Cosmetic Act have been collected since 1954. The following amounts have been collected in recent years:

FY 85 - $674,000
FY 86 - $1,147,200
FY 87 - $639,400 (for the first five months)

Question: What new fees are the Agency proposing, and when will they go into effect?

Answer: We have issued a notice of proposed rule making, proposing the collection of fees associated with the registration of pesticides. We intend to issue a final rule by the end of the year.

Question: How much do you expect to collect each year under each new fee?

Answer: We estimate that, if fees are collected at the

same levels as proposed, we will realize approximately $18 million annually for Pesticide registrations.

Question: How will proceeds from the fees be treated--are they used to defer pesticide program expenses? Could they be used to build an indemnification fund, or a fund to support state environmental monitoring and training programs?

Answer: At the present time, any receipts would be deposited to the U.S Treasury as miscellaneous receipts rather than being directly available to the program.

Question: Will the agency be seeking any new legislative authority with respect to the imposition and/or use of fees?

Answer: The Agency has proposed legislation which would permit such fees to be made available to the Agency. The proposed legislation would deposit these fees in a special fund in the U.S Treasury to be expended for Agency activities for which the charge is made.

Question: What about minor use problems and concerns--how does the Agency propose to address them as new fees are imposed?

Answer: The registration fee we have proposed contains language that would waive fees for minor use registrations. We expect to include this language in the final rule.

PRIORITY IN R&D PLANS

Question: How has the Agency's R&D plans for FY 1988 been revised to reflect higher priority concern associated with risks stemming from pesticides exposure?

Answer: Concern with potential environmental problems of pesticide exposure is reflected in increased efforts in ecotoxicity, risk assessment evaluations, and development of applicable assessment techniques. Research into model development for predictive estimates of pesticides exposures has been increased to provide information on pesticide absorption to soil/sediments and on pesticide transformations in the environment. Increased support for this risk research has resulted in reduced efforts in other areas of endeavor, particularly test methods development. The new research outputs will enhance risk analysis and decisions regarding pesticide exposures.

In addition, research in developing animal exposure models will be emphasized as these models will be used to extrapolate estimates for human risk to pesticides.

PESTICIDES DATA BASE

Question: The subcommittee is aware of a pesticide database developed by the National Academy of Sciences as part of an EPA funded project on the Delaney Clause. What are your intentions in FY 1988 to support the dissemination of this data base to the states?

Answer: As we understand the system, it utilizes data bases developed by the Agency. The novel approach is a computer programming innovation which permits cross utilization of these data bases. A demonstration of the potential of the National Academy of Sciences (NAS) approach, if fully developed, was provided to Agency staff earlier this year. This type of approach, i.e. a desktop system that would be readily available and easy to use, has considerable potential for use. The Agency does intend to employ such methods in its tolerance assessments.

Regarding dissemination to the States, further meetings with the NAS are planned to discuss the issue.

Question: What potential benefits do you see if it were properly developed and utilized?

Answer: If fully developed, this model could have considerable utility in the Agency as a tool for comparison of relative risks among different pesticides for which adequate data exists. Therefore, if a sufficient amount of data were available for input into such a system, the Agency Risk Manager would be readily able to answer a question involving, for example, cancellation of a pesticide whose uses will be replaced by another pesticide with different toxicity.

FUNDS FOR PESTICIDES DATA BASE

Question: Are there adequate funds in the budget request to support timely adoption in the Office of Pesticide Programs of this microcomputer database?

Answer: The Agency has not requested funds for this data base because it is a lower priority than other Pesticides programs.

FURTHER DEVELOPMENT OF THE DATA BASE

Question: What will you do to support further development, testing, refinement and dissemination of the database in FY 1988, both in the Academy and at the state level?

Answer: The data base on which the NAS computer model is based was derived from the EPA Tolerance Assessment System (TAS) data base, which is now fully operational. Funds have been

appropriated in FY 1987, and have been requested in the FY 1988 budget for the operation, maintenance, and enhancement of this system. As part of its responsibility for the Tolerance Assessment System, the Agency is in the process of developing a desktop system. Should the NAS system become available to the Agency, that system may also have considerable utility. To date, however, the Agency has been given only brief exposures to the NAS model, and has not had the opportunity to carefully examine and test its operation.

Regarding dissemination of the data base, the full TAS data base is available to the public through the NTIS. The states may obtain the data tapes and implement their own system, and the desktop versions, when available, will also likely be made available to the States. Finally, the Agency is exploring the option of authorizing a group to provide public access to the complete system on a mainframe as a "franchise" type agreement, similar to the National Library of Medicine's MEDLINE or TOXLINE services.

REDUCTION IN AIR PROGRAMS BUDGET

Question: You are requesting $241 million for the air programs next year, a decrease of $3.2 million below current estimates. That's not a large reduction in a budget this size. How would the cut be implemented?

Answer: The $3.2 million decrease is the net result of increases of almost $3.7 million in the Salaries and Expenses and Research and Development appropriations and a decrease of about $7.0 million in the Abatement, Control and Compliance appropriation. The decrease reflects completion of regulatory development and analytical work related to National Emission Standards for Hazardous Air Pollutants, chlorofluorocarbon controls, and global climate change.

IDENTIFICATION OF OZONE STANDARD VIOLATORS

Question: On December 31, 1987, a large area of the United States will be out of compliance with ozone standards and subject to severe penalties. In some cases, such as the southeastern corner of Wisconsin, there is good evidence that the offending pollution comes from out of State, in this case from Illinois and Indiana where air quality laws are not enforced as effectively as they are in Wisconsin. Do you have any policy for identifying interstate contributions to ozone standard violations? Can the ozone standards be met?

Answer: EPA recognizes that the ozone problem has broad geographic implications and that violations are frequently measured at a considerable distance downwind from the actual source of the problem. That is why the agency has always looked at the problem from as broad a perspective as possible. For instance, the governing ozone ambient air quality monitor in

Racine, Wisconsin, establishes the design value for the Chicago State Implementation Plan (SIP). EPA also recognizes that multi-State plans have to be consistent so the agency has made certain kinds of reasonably available control technology (RACT) mandatory for all areas.

As you pointed out, the ozone nonattainment problem is likely to exist well past the current attainment deadlines. EPA is putting a large effort into the development of a post-1987 ozone policy because of this. We have recently sent letters to Governors and Commissioners of State air pollution control agencies in an attempt to determine how well plans are being developed and implemented, and to advise them that EPA will be making calls for SIP revisions where plans are inadequate to meet the standards.

SULFUR DIOXIDE SOURCE COMPLIANCE

Question: Is there any method for identifying those states that are less vigorous in enforcing the laws? I am especially concerned because of press reports that almost 5 million tons of sulfur dioxide could be removed from the air each year if the existing laws were strictly enforced by the states. Do you regard this statement as true? If not, what level of removal would be more accurate?

Answer: States are responsible for annual inspections of sources and, through EPA/State enforcement agreements, States are responsible for the identification of violators and timely enforcement actions. Every two years EPA audits each State air program including the enforcement component.

Because compliance is a dynamic phenomenon and because we rely on State data and administration, it is difficult to provide an accurate or stable estimate of the impact of all sources being in compliance with existing laws. Since EPA's Compliance Data System shows 90 percent of all Class A sources (greater than 100 tons/year) to be in compliance and almost all areas of the country are monitoring attainment for the National Ambient Air Quality Standard for sulfur dioxide (SO_2) it appears unlikely that SO_2 emissions could be reduced by an additional five million tons per year simply through enforcement actions.

However, given the great uncertainties in making such emissions estimates and given that attainment of standards, not reduction of total loadings, is our primary responsibility under the ambient program, we have not developed accurate and reliable estimates of the impact of compliance efforts on total loadings.

AIRBORNE TOXICS

Question: Recent studies have suggested that airborne toxics are a major and the least regulated source of toxic deposition in the Great Lakes, yet EPA is currently regulating only a small fraction of these pollutants (asbestos, beryllium, mercury, vinyl

chloride, benzene, radionuclides, and arsenic). When does EPA expect to initiate regulation of additional pollutants? Why has EPA not already done so, especially given Congress' 1977 mandate?

Answer: Over the last several years, we have issued decisions on whether to regulate 24 potentially toxic air pollutants under section 112 of the Clean Air Act. Of those decisions, 11 have been decisions to regulate. We are developing National Emission Standards for Hazardous Air Pollutants (NESHAP) for a number of source categories emitting these 11 pollutants. We expect to propose a NESHAP for coke oven emissions very shortly.

This summer we expect to propose a broadbased NESHAP covering 8 organic pollutants for 13 source categories. As we noted in EPA's Air Toxic Strategy issued in June 1985, we expect to be using other authorities besides section 112 of the Clean Air Act to directly or indirectly reduce emissions of toxic air pollutants. Examples include recently proposed regulations for new wood stoves under section 111 (New Source Performance Standards) of the Clean Air Act and for hazardous waste treatment, storage and disposal facilities under the Resource Conservation and Recovery Act. Later this year we expect to propose regulations to eliminate chromium emissions from comfort cooling towers under the authority of the Toxic Substances Control Act.

The reasons for the relatively slow regulatory pace under section 112 in the past have been discussed at length in Congressional testimony by EPA officials, at prior budget hearings, and at a variety of forums leading to the announcement of EPA's Air Toxic Strategy. What is most important at this point is that EPA has in place and is aggressively implementing a comprehensive program to regulate air toxics, using a variety of EPA authorities, and to build State and local air toxics programs to address this diverse, complex problem.

Generally, the Agency has not found it possible to significantly speed the NESHAP process and still maintain the quality and scientific integrity of the regulation. The typical NESHAP is developed in two phases, each taking about two years. The first phase, data gathering and analysis, involves the identification of emission sources and the determination of the need and ability to control these scurces (risk assessment). The second phase involves Agency decision making (risk management) and review prior to a final action.

AC&C APPROPRIATION REDUCTION

Question: The National Academy of Sciences has indicated that residents in the Great Lakes Basin are "exposed to, and accumulate, appreciably more toxic chemical burden" than similar populations elsewhere. How can EPA justify cutting its Abatement, Control and Compliance Appropriation by $500,000, or about 12%, given these risks?

Answer: Toxic chemical exposure in the Great Lakes Basin is associated with the high degree of industrial and agricultural activities in the basin and resulting presence of toxic chemicals in food, water, and air. Further, it has been demonstrated that long-range transport of chemicals in air from outside the Great Lakes Basin is causing significant loading of toxics to the Great Lakes. This year we are beginning implementation of an enhanced Great Lakes Atmospheric Deposition network to accurately measure the deposition of toxics into the Great Lakes. The Agency is also working closely with International Joint Commissions and the States in the development and implementation of toxics strategies to address the problem of toxics exposure in the basin. We are continuing to work with the States in the development of uniform fish advisories and other similar activities to reduce exposure. All these efforts are being carried out within existing resource levels.

NAPAP RESEARCH

Question: Would you list what you consider to be the most significant research results from the National Acid Precipitation Assessment Program. EPA has spent $300 million yet almost nothing has been released publicly. Has the research enabled you to say anything more about acid rain today than you could five years ago when the program started?

Answer: The research conducted by EPA and the other Federal agencies under the National Acid Precipitation Assessment Program (NAPAP) has enabled us to say much more about the causes, exposures, effects and corrective steps for acid deposition than was possible five years ago.

To illustrate what we have learned about acid rain in the last five years, we will focus on the aquatic effects research program. A few years ago, we had little information on the extent and magnitude of the effects of acid rain on aquatic systems. We had little capability to predict the extent and rate of future damage, or to estimate the recovery rate of aquatic systems if deposition were reduced.

In recent years, we have made much progress. In the area of surface water acidification, we have initiated two major research efforts: the National Surface Water Survey (NSWS) to help determine the current extent and distribution of acidic surface waters; and the Direct/Delayed Response Project to help us to estimate the rate and magnitude of future acidification.

Phase I of the Eastern and Western Lake Surveys were published in August of last year and January of this year, respectively. Under current schedules, we anticipate that by the end of 1988 we will see the results of Phase II of the Eastern Lake Survey, Phase I of the Eastern Stream Survey, and the direct/delayed

response estimates for the Northeast and Blue Ridge Province. Preliminary results from our analysis of episodic effects also should be available. These results will provide a statistically defensible estimate of the current extent of surface water acidification and, in combination with projected emissions trends, expected rates of future acidification on a region-by-region basis for the Eastern United States.

Five years ago, evidence suggested that there were acidic aquatic systems in the U.S., however their extent and location were unknown. Phase I of the NSWS has demonstrated that several subregions of the Northeast, Mid-Atlantic, and Upper Midwest exhibit acidic waters (i.e., 5-14% of their lakes and streams). Few acidic systems occur in the Southeast except in Florida, which contains large numbers (i.e., >22% of their lakes and streams). No acidic systems were observed in the West.

Five years ago, acidic deposition was suspected of contributing to increased surface water acidity in the U.S. Today, available data suggests that the present status of acidic lakes in the U.S. can be attributed to sulfate deposition. Based on analyses of NSWS data, it is estimated that 794 acidic lakes nationwide and 699-2730 (depending on sampling location) acidic stream reaches in the Mid-Atlantic and Southeast can be attributed to acidic deposition.

Further, comparisons of base cations with sulfate and nitrate concentrations in acidic surface waters from the NSWS strongly support the hypothesis that acidification has occurred on regional scales as a result of acid deposition; particularly in the Northeast and across a gradient from West to East in the Upper Midwest. In the West there is no evidence of regional-scale chronic acidification of surface waters.

On a sub-regional scale, evidence suggests that sulfate deposition influences sulfate concentrations in surface waters. However, the variability of surface water sulfate levels within sub-regions receiving similar deposition is high. This is new evidence for the profound influence that watershed characteristics have on the response of surface waters to acidic deposition and is consistent with observations that systems receiving similar deposition can differ significantly in the magnitude and extent of their response.

Five years ago, there was no consensus as to the time-frame in which acidic systems could recover, if ever. Today, empirical evidence is now available that indicates acidic systems can and do recover relatively quickly in response to reductions in levels of deposition.

This discussion represents a sampling of many of the significant research findings that have occurred in the aquatic effects acid rain research program during the past five years.

Question: What percentage of your NAPAP budget goes to materials damage from acid rain?

Answer: About 4.9% ($2.7 million in FY 1987) of the Environmental Protection Agency's National Acid Precipitation budget ($55 million in FY 1987) goes to materials damage.

PENALTIES FOR UNLEADED GASOLINE REGULATION VIOLATORS

Question: A recent audit report by the Inspector General's Office of EPA's Office of Mobile Sources showed penalties against violators of EPA's unleaded gasoline regulations were only a fraction (in some cases only 5 to 10%) of the amount allowed by the Clean Air Act. What steps is the Agency taking to renew its penalty policies and ensure that final penalties are large enough to act as a deterrent? Mr. Martin, can you respond?

Answer: The Agency agreed to review its draft Civil Penalty Policy on Mobile Sources of Air Pollution to ensure that this policy is in compliance with overall Agency penalty policy guidelines. These guidelines state that penalties must be set high enough to act as a deterrent. The Agency plans to issue its Mobile Sources Penalty Policy by June 30, 1987. (Audit Report No. E1G16-05-0058-6160, Office of Mobile Sources' Establishment, Mitigation, and Collection of Penalties).

Question: The same report indicated that EPA staff did not adequately document their basis for mitigating proposed penalties and ensuring that necessary corrective actions have been taken by identified violators. Has the Agency initiated the changes necessary to ensure that settlements require sufficient penalties, and that violators have taken the necessary corrective actions? (Audit Report No. E1G16-05-0058-6150 Office of Mobile Sources' Identification of Violators Program)

Answer: To ensure that penalties are sufficient, the Agency agreed to review its penalty schedule. EPA has also agreed to improve its documentation of settlement case files by noting the basis for the mitigated penalty and by listing time frames when the terms of the agreement are to be accomplished. All final agreements will be accompanied by an Action Memorandum which will highlight all the major settlement terms to management. To better track violators' corrective actions, the Agency will investigate the utility of tracking problem cases separately with "written explanations to management." After these actions are implemented the Office of Inspector General will determine if they result in adequate corrective actions.

COMPREHENSIVE INSPECTION STRATEGY

Question: A recent audit report by the Inspector General's Office explained that the Office of Mobile Sources' inspection

itinerary of retail fuel outlets has remained essentially the same over the last three years and identified few significant violations. This occurred because officials did not have a comprehensive inspection strategy. What is the Agency doing to correct these problems? (Audit Report No. E1G16-05-0127-70294, Office of Mobile Sources' Identification of Violators Program).

Answer: The Office of Mobile Sources (OMS) is developing a comprehensive inspection strategy in order to ensure the effective use of available resources. OMS will alter the terms of its support contract to provide for more flexibility in carrying out the program. The current contract for these inspections will expire this summer, providing an opportunity to put in place a program that will flexibly address emerging enforcement needs. OMS has developed alternative criteria for the next contract competition using the experience gained from past efforts and the independent insights provided by the Inspector General's review.

TOXIC AUTO EMISSIONS

Question: What are your goals next year to control toxic emissions from motor vehicles and vehicle fuels?

Answer: We continue to address the problems created by air toxics from mobile sources. We are working on our assessment of the potential impact of eliminating lead altogether from gasoline, and the development of lead substitutes. We have promulgated technology forcing standards to control particulate emissions from diesel trucks, resulting in emissions reductions in the 1990's. As part of the effort to implement these standards, we will continue to assess progress in the development of heavy-duty diesel particulate control technology. We will continue to move forward in the development of diesel fuel quality standards. The control of diesel fuel quality will have a significant impact on particulate emissions. The use of methanol as an alternative fuel for both diesel and gasoline-type engines will also have a significant impact on reducing both particulates and other toxic substances such as benzene. We expect to issue a final rule on emission standards for methanol vehicles in FY 1988.

As part of our enforcement effort, we plan to continue our lead phasedown enforcement to limit lead content to 0.1 grams per leaded gallon of gasoline. We are developing a heavy-duty recall program to ensure that heavy-duty engines built to conform to the more stringent standards will meet those standards in use. We will continue our light-duty recall program to enforce emission standards for particulate matter which were reduced in the 1987 model year to .20 grams per mile. Fuels registration activities have received a new emphasis with a transfer of the function to the mobile source enforcement program. We also expect to shift the focus of our field enforcement activities towards newer contaminants, such as the improper use of additives other than lead.

TOXIC AUTO EMISSIONS

Question: How do you plan to ensure that fuel additives do not contribute to emissions of hazardous air pollutants?

Answer: We expect that the number and volume of new fuels and fuel additives will increase dramatically as alternatives to using lead in gasoline are sought by both refiners and consumers. In response to this trend, we have taken actions with both short-term and longer-term impacts. We are developing test protocols that would require the assessment of the public health effects from fuels and fuel additives prior to registration. We expect to propose a rule to this effect in FY 1988. With the information developed as a result of the changed registration program, we expect to be able to take action to minimize the health risk from automotive fuels emissions by taking additional regulatory action. For the immediate future, we are expanding our efforts in the fuels and fuel additives registration program. This activity is now part of the Mobile Source Fuels Enforcement Program. We expect to be better able to focus our enforcement efforts related to fuels with the use of information obtained through the registration of fuels and additives. This will enhance our ability to assess and control potential hazards associated with these new fuels and additives.

NATIONAL OZONE STANDARD

Question: Does EPA still project that 35 large urban areas will not meet the national ozone standard by December 31, 1987?

Answer: We still anticipate that approximately 35 large urban areas will not attain the ozone levels specified by the standard by December 31, 1987. We are now beginning to evaluate the 1986 ambient air quality monitoring data to refine this list. After the 1987 monitoring data is received from the States we will be able to decide which State Implementation Plans (SIPs) for meeting the standard are "substantially inadequate" and thus which areas will receive a formal call for a SIP revision.

EVAPORATIVE EMISSIONS REGULATIONS

Question: What changes will EPA make to its evaporative emissions regulations to ensure better compliance with the ozone standard?

Answer: A steady upward trend in gasoline volatility over the past 30 years has increased summertime Reid Vapor Pressure (RVP, a measure of fuel volatility) significantly. While in-use gasoline RVP has gone from 9.0 pounds per square inch (psi) to 11.5 psi or higher in the last ten years, the test fuel used for emissions certification has remained at 9.0 psi. This has resulted in large understatement of volatile organic compound

(VOC) emissions from in-use vehicles. Refueling emissions also represent a significant portion of the total VOC inventory. EPA is looking at a number of alternatives for addressing these emission problems and may be issuing proposals later this year.

Question: When will these changes take place?

Answer: EPA is considering issuing a Notice of Proposed Rulemaking on fuel volatility standards in FY 1987.

NATIONAL AIR AUDIT SYSTEM

Question: How does EPA use the findings of its National Air Audit System to define more efficient and meaningful national programs? Can you give us any examples?

Answer: Each of the ten EPA Regional Offices prepares an audit report for each audited agency, listing the findings, including any deficiencies observed. The Regional Office then works with the audited agency to set up a schedule for correcting the deficiencies. The Regional Offices forward the individual audit reports to the Office of Air and Radiation, where the results are compiled and summarized by topic. Where deficiencies appear to be widespread and could possibly be corrected through a national effort (e.g., more guidance in a particular area), OAR would attempt to include such effort into its operating plan or in the development of policy. An example of this occurred in the case of implementation of "generic" emissions trading rules (i.e., revisions to emission limits that are automatically incorporated into SIPs without formal EPA approval). The audit uncovered instances where one State was improperly implementing its approved generic regulation and other States were implementing generic emission trading rules even though EPA had never approved them. This information provided actual case histories that led to the creation of additional safeguards into the emissions trading policy that EPA published in 1986.

Question: Based on its National Air Audit System, what priorities and resources has EPA established to better support State and local needs?

Answer: The specific State or local audit deficiencies identified in the individual audits are corrected through interactions between the EPA Regional Offices and the audited agencies. This is generally done through the air grant negotiation process. In addition, the correction of these deficiencies is tracked by EPA Headquarters through its Strategic Planning and Management System (SPMS).

AIR MONITORING PROGRAM

Question: What action does EPA plan to take to improve its air monitoring program?

Answer: In October 1975 the Agency undertook major steps to improve its ambient air monitoring programs in response to identified air monitoring deficiencies. A Standing Air Monitoring Work Group (SAMWG) composed of representatives from EPA and State and local agencies served as the driving force of the improvement efforts.

As a result of the SAMWG recommendations and the Clean Air Act section 319 requirements, EPA promulgated new monitoring regulations on May 10, 1979. These regulations were intended to insure that air monitoring data will be of acceptable quality and comparable for all monitoring stations, that the monitoring networks will be optimized and cost-effective, and that the data will be submitted to EPA in a timely manner.

These regulations and their subsequent implementation have proved to be highly successful. However, in order to meet changing air monitoring program requirements and to further improve the program, changes to these regulations were identified by State and local air pollution control agencies through the SAMWG and the individual operating experiences of State and local agencies and the EPA over a five-year period. Revisions were promulgated March 19, 1986 which incorporated these changes.

In 1984 the Agency took specific actions to enhance monitoring networks in those areas unlikely to attain the ozone standard by 1987. These actions included special purpose monitoring for non-methane organic compounds (NMOC) in approximately 20 urban areas during the summers of 1984, 1985 and 1986 and enhancement of the permanent networks for ozone and nitrogen oxides where the existing data bases were inadquate for use in ozone modeling. Further NMOC monitoring is planned for the summer session during 1987, 1988, and possibly in 1989 to ensure adequate data bases for attainment demonstration analyses for the post-1987 ozone State implementation plans (SIPs). Section 105 grant monies have been earmarked for supporting these efforts through FY 1988.

In addition, the organizations representing State and local air pollution control officials conducted a monitoring equipment needs survey in 1984 to determine the condition of existing air monitoring equipment. Based on this survey, EPA allocated $2 million in FY 1986 section 105 grant funds for the replacement of worn-out ambient air monitors, primarily carbon monoxide and ozone monitors, identified as being in "poor" condition in the 1984 survey. Most of these monitors will have been purchased by the end of FY 1987. A new updated survey on equipment needs will be conducted by the same organizations later in 1987. Also, the SAMWG meets twice a year to discuss air monitoring activities. Approaches to improve the monitoring program have been and will continue to be a topic included on their agenda.

COMPLIANCE WITH THE NATIONAL OZONE STANDARD

Question: How does EPA plan to update or revise its models to better determine State's compliance with the national ozone standard?

Answer: Compliance with the National Ambient Air Quality Standard (NAAQS) for ozone (O_3) is determined on the basis of air quality monitoring data. O_3 monitoring networks are deployed so as to meet or exceed minimum criteria specified in Part 58 of the Code of Federal Regulations. Typically, over a three-year period, if no monitor within a Metropolitan Statistical Area (MSA) measures more than three occasions where the daily maximum O_3 concentration is greater than 0.12 parts per million, that MSA is in compliance with the NAAQS.

Modeling is used to estimate how much reduction of O_3 precursors (i.e, volatile organic compounds (VOCs) and nitrogen oxides (NO_x) is necessary for those MSAs not attaining the NAAQS or responsible for nonattainment downwind from the MSA. Several efforts are being implemented to update and improve models. These efforts fall into three categories: (a) improvement of underlying data bases; (b) improvement in models themselves; and (c) improvement in modeling guidance and review procedures. Data base improvement includes better measurements of the ratios of nonmethane organic compounds to nitrogen oxides, more comprehensive and accurate emission inventories, and recommendations concerning levels and composition of transported organic precursors from upwind sources which reflect recent field observations. Improvements in the modeling procedures themselves include use of a newer chemical mechanism reflecting more recent experimental/theoretical data. In addition, efforts have begun to apply a Regional Oxidant Model (ROM-1) to better characterize long-range transport of O_3 and its precursors in the northeastern United States. Eventually, results from the ROM-1 will be used to establish boundary conditions for models used to estimate control targets for individual MSAs. Meanwhile, the Office of Research and Development is working on an improved model (ROM-2) which, when validated, will provide a more accurate picture of the complex chemical and physical interactions which occur when ozone precursors are transported over long distances. Finally, modeling guidance is being updated and more formalized review procedures of modeling analyses are being established.

RESEARCH AT THE HEALTH EFFECTS INSTITUTE

Question: The Agency cooperatively funds the Health Effects Lab with the auto industry. What kinds of research does the lab conduct which would not otherwise be done?

Answer: The Health Effects Institute (HEI) is not a laboratory but rather contracts for research on the health effects of automobile emissions which EPA does not do. For

example, the HEI research program covers diesel emissions, including some of its nitropyrene components. HEI has begun a program to study the health effects of aldehydes. Although the carcinogenic properties of formaldehyde have been of concern, it would be useful for EPA to have information on non-carcinogenic effects from low level exposure.

Question: Why isn't there a conflict of interest in using data funded by long-time foes of air pollution regulation?

Answer: There is not a conflict of interest in using data funded by long-time foes of air pollution regulation because the HEI governing board and staff have independent control over the funds. The sponsors may offer needs or suggestions for research but do not control who gets the funds and cannot modify the outcome of the investigators' findings. Since the investigators are funded by HEI, and not EPA or the automotive industry, they are free from any implied expectations or biases in their results and conclusions.

RADIUM STANDARDS IN DRINKING WATER

Question: While the news media have featured many stories recently on radon gas, another related radiation problem has surfaced in states with large granite deposits -- radium pollution of groundwater. What's the current status of radium standards for drinking water?

Answer: The Maximum Contaminant Level (MCL) for radium in drinking water is 5 pico curies per liter (pCi/l) encompassing both radium-226 and radium-228 isotopes. The MCL was set in 1976 as part of the National Interim Primary Drinking Water Regulations. We are currently re-evaluating the radium MCL and we are scheduled to propose a revised MCL by the end of calendar year 1987. We hope to finalize the MCL by the end of 1988. Radium-226 and Radium-228 are two of 83 contaminants listed in the SDWA which must be regulated by June of 1989.

STANDARD FOR RADIUM IN DRINKING WATER

Question: Wisconsin, as a state with significant granite deposits, has at least 200,000 residents whose drinking water may exceed a standard of 5 pCi/l by a small amount. The states of Maine and New Hampshire have similarly large problems at this level. How will a standard be selected? Has thought been given to separately regulating radium 226 and 228?

Answer: Under the Safe Drinking Water Act (SDWA), EPA is to specify both Maximum Contaminant Level Goals (MCLGs) and Maximum Contaminant Levels (MCLs). MCLGs are non-enforceable health goals to be set at levels at which no adverse effect upon the health of persons occurs with an adequate margin of safety. For carcinogens (like radium), MCLGs are set at zero. MCLs are to be

set as close to the MCLGs as feasible. Feasible is defined in the SDWA as feasible using the best available technology taking costs into consideration. The MCL for radium will be set based upon a number of feasibility factors including the availability and performance of treatment technologies, the costs of technologies, the availability and reliability of analytical methods and the potential cost impacts upon public water systems. Current plans are to set separate MCLGs and MCLs for radium-226 and radium-228.

CLEAN-UP COSTS

Question: The Wisconsin Department of Natural Resources estimates that the cost to clean up radium-contaminated drinking water will be $51 million for capital costs alone if the 5 pico curies standard is adopted by the Agency. Are there any sources of assistance either through grants or loans, to pay all or some of these costs?

Answer: Yes, although no assistance is available from EPA, in some instances systems may qualify for loans from the Farmer's Home Administration. In addition, some States do provide limited financial assistance to water systems. Aside from State assistance, however, the systems recourse is through its rate structure and private sector financing. The 5 pico standard, effective since June 1977, is under Agency reconsideration. Our current plans are to set separate standards for radium-226 and radium-228.

RADIOACTIVE SLUDGE

Question: One method of removing radium from drinking water would create radioactive sludge. Can this be landfilled under existing law?

Answer: Yes. There are no Federal requirements for disposal of the low level radioactive sludge that is produced by this drinking water treatment process.

NATIONWIDE IDENTIFICATION OF RADIUM IN WATER

Question: Does the agency plan a nationwide identification of radium in water?

Answer: EPA has recently completed a national sampling survey, the National Inorganics and Radionuclides Survey, of some 1200 public water systems in which radium was one of the constituents sampled. The report is being prepared and should be available this summer. In addition to that survey, monitoring is continuing at public water systems across the country as part of compliance monitoring requirements associated with the Interim Maximum Contaminant Level. Compliance monitoring requirements will also be set when the revised MCL is published.

GREAT LAKES CLEAN-UP

Question: The recently enacted Clean Water Act contains new authority for Great Lakes cleanup, especially with regard to the toxic hotspots identified by the International Joint Commission. When will you be issuing criteria for demonstration projects for in-place toxics removal for places like Sheboygan, Green Bay, and Milwaukee harbors?

Answer: The Great Lakes National Program Office is currently in the planning stage of implementing the five year study and demonstration program. Existing funding would carry the program through most of Phase 1 by the end of 1988. Therefore, a draft ranking criteria should be available by then.

MASS BALANCE METHOD

Question: In light of the extremely complicated nature of pollution in the Great Lakes, with toxic chemicals and substances entering the lakes by way of tributaries, groundwater, point and nonpoint sources, air pollution and already contaminated bottom sediments, a point source-limited program is inadequate to deal with the problem. EPA wisely decided to use a more comprehensive plan to address the toxics problem. Unfortunately the mass balance method being tested at Green Bay deals with only 6 chemicals and one location. Do you have any plan this year to expand either the site or the chemical list?

Answer: Current pilot studies on the mass balance approach to toxics in Green Bay represent a significant undertaking in both the scientific sense and in terms of fiscal resources. It would be unwise to extend the activity to other sites until results of the pilot studies demonstrate that the approach is practical in larger, more complex areas.

GREAT LAKES STATES - REMEDIAL ACTION

Question: What are you doing to assist the Great Lakes States with remedial action plans for areas of concern such as toxics?

Answer: The Great Lakes National Program of U.S. EPA currently is providing contractor assistance to the State pollution control agencies for sixteen of the 28 U.S. Areas of Concern for the preparation of remedial action plans. This Office is negotiating with New York and Minnesota for initiation of contract assistance for 4 additional Areas of Concern. In addition grants have been awarded to Wisconsin to enable state staff to prepare remedial action plans for 3 additional Areas of Concern.

U.S. EPA is carrying out two special studies to identify the pollution problems, both conventional and toxic. The first is a three year study in the Connecting Channels between Lakes Huron and Erie. This area includes three additional areas of

concern. The second area, Lake Michigan's Green Bay, is another multi-year study that complements and enhances the work that the State of Wisconsin is currently doing with assistance from U.S. EPA. Both of these studies will provide an enormous amount of information on the sources, the amounts and the ultimate fate of toxic substances in the two areas. An additional benefit will be the refinement of the Agency's ability to identify, locate and quantify toxic substances throughout the Great Lakes.

GREAT LAKES COORDINATION WITH NOAA

Question: What actions will you be taking with the National Oceanic and Atmospheric Administration to coordinate your new responsibilities under the Clean Water Act's Great Lakes program?

Answer: Meetings have already taken place with the National Oceanic and Atmospheric Administration (NOAA) to initiate coordination and to develop formal mechanisms for interaction. Accordingly, an Interagency Agreement is currently being developed to formalize and ensure research coordination under the Clean Water Act.

FTES FOR CLEAN LAKES PROGRAM

Question: The Agency presently administers and oversees 200 active projects nationwide which represents at least 5 man-years of work at headquarters alone and a federal investment of 40 to 50 million dollars, yet only one man-year is assigned to the Clean Lakes Program at headquarters and five man-years at the regional level.

This is the case despite the fact that in the fiscal year 1985 appropriation process EPA was given resources for, and directed to assign, three Full Time Equivalents (FTEs) to the Clean Lake Program at headquarters.

In light of the fact that the Clean Lakes Program has received strong reauthorization within the Clean Water Act, what additional management resources do you plan to request for the program at both headquarters and the regional level?

Answer: The Agency has requested supplemental funds to support the new requirements of the Water Quality Act of 1987. The supplemental request was submitted to OMB in mid-April and included resources for Headquarters and Regional management of the Clean Lakes program in FY 1987 and FY 1988.

STATE AND LOCAL GOVERNMENT INVOLVEMENT

Question: The Clean Lakes Program is a proven popular program which has been broadened and strengthened while the Nonpoint Source Program is new and unproven. Both programs rely heavily on state leadership and local municipal coordination.

What steps has EPA taken, or anticipates taking, to involve the states and local governments in formulating guidance and/or regulations for administering and implementing the program?

Answer: The Agency is currently developing concept papers which will define the steps necessary to implement the Water Quality Act, including the nonpoint source and clean lakes requirements. Once these concept papers are complete they will be distributed for review and comment to State and local governments and other interested parties. Based on these comments EPA will develop and issue necessary guidance and/or regulations for the nonpoint source and clean lakes programs.

WATER QUALITY MANAGEMENT BUDGET

Questions: You have requested $3.95 million for Water Quality Management, an increase during a year when the Agency is generally proposing decreases. Some of this is justified by new requirements for a nonpoint source control planning and implementation program, which would include grants to states for each. What relative risks to health and the environment would be averted by this program in comparison with the Construction grants program?

Answer: Despite control on conventional pollutants from municipal and industrial point sources, recent assessments suggest that nonpoint source (NPS) pollution may prevent achievement of water quality goals. These assessments indicate that NPS pollution, which is largely uncontrolled, is a most significant source of surface water pollution. The 1985 ASIWPCA report "America's Clean Water" states that 41% of assessed rivers, 57% of the U.S. lakes studied, and 28% of the estuarine sources studied are either threatened, impaired, or severely impacted by NPS pollution. Nonpoint sources also impact groundwater, especially in the Midwest, causing high nitrate and pesticide levels.

Nonpoint sources are an important cause of health risks. Increased fertilizer usage has resulted in risks associated with high nitrate levels in many Midwestern groundwater aquifers, and these nitrate concentrations in drinking water can be toxic to infants. Pesticides used for agriculture and other applications can impair the suitability of water for aquatic life and public water supplies. Pesticides also have accumulated in fish and shellfish to levels that exceed those established for human consumption. Finally, fecal chloroform from cattle feedlots contaminate surface water and lead to increased risk of bacterial disease transmission or infection.

Nonpoint source pollution causes major environmental damage, including loss of recreational water uses, loss of habitat for aquatic life and wildlife, and degradation of aquatic ecosystems. Examples of damage from NPS pollution include silted-in streams that become unsuitable as fish habitats and lakes that become overenriched with nutrients (eutrophic) and lose their former

recreational use value. NPS pollution has also been identified as a major cause of lost estuarine productivity and has impacted, among others, the Chesapeake Bay, Long Island Sound, Puget Sound and San Francisco Bay.

Recently a comparative risk project was conducted that ranked NPS pollution as one of the top environmental problems facing the Agency. The principal reason that NPS pollution was ranked so highly was that the nonpoint source causes of the health and environmental risks listed above are not well controlled at this time in most areas of the nation.

NONPOINT SOURCE CONTROL IMPLEMENTATION

Question: How much would a nonpoint source control program cost to implement? I foresee the potential for another program the size of the construction grants program, or perhaps even larger. How much will be needed over the next five and ten years for planning? How much for implementation? What will the Federal Government and State shares be?

Answer: At present, realistic and reliable estimates of the total cost of controlling nonpoint source (NPS) pollution are not available. There have been several previous attempts to develop estimated costs, but they have used varying assumptions about effects of activities and land uses that cause NPS pollution and rough estimates of the costs of best management practices (BMPs) to control NPS pollution. Consequently, the results have varied considerably both as to the study quality and the estimated cost of implementing recommended controls.

Much of the needed planning for NPS control programs has already been completed and will require only an updating and fine-tuning. Most of the resources available for NPS pollution control from this point on can and should be devoted to implementation including the design of State and local control systems. Until State assessments and management programs have been reviewed it is not possible to assess the need for implementation program funding.

The Agency supports an approach by which the States would identify the NPS water quality impacts that presently can be shown to prevent or seriously threaten approved water uses, rank them by relative risk, and selectively implement controls using available resources. The 1987 Water Quality Act also authorizes Federal grants for NPS programs that require at least a 40 percent State matching share.

NSF -- RESEARCH OVERLAP

Question: In hearings before this Subcommittee on March 12, I asked National Science Foundation Director Erich Bloch about a series of projects which sounded more like they belonged in EPA's bailiwick. For example, NSF is spending

$128,375 for a study on the fate of contaminants in ground water. In reviewing your list of contracts for 1986, I note a study on chemical transformation processes in ground water, and several others with similar ground water contamination themes. This is just one of several areas where there seems to be overlap, and I want to know what steps you have taken to ensure that overlap is kept to an absolute minimum?

Answer: We have a continuing effort to keep ourselves abreast of the work of other Agencies and, indeed, other research organizations around the world. For example, EPA's Science Advisory Board recently completed a study of ongoing groundwater research within the Agency's various offices and laboratories as well as other agencies. Among the areas of review were the appropriateness of the research and overlap.

In addition, we have co-funded projects with the Interior (U.S. Geological Survey), Defense, and Agriculture Departments. Within the last month, EPA scientists attended a review of groundwater research by the Geological Survey and they have attended a review of EPA's groundwater research program. Internationally, our Agency has established a fairly comprehensive exchange program with groundwater scientists in other countries which not only includes the exchange of information but also the temporary exchange of scientists.

"The fate of contaminants in groundwater" is a description of a large and extremely complex area of research. All of the Agencies mentioned above conduct research in this area as well as NSF, Energy, TVA, and others. In fact, scientists in this area of research have a rather elaborate system of keeping each other informed of the projects they are conducting as well as the various technical approaches being used.

It is important to note that each Agency conducts research according to its legislative mandate. For example, Agriculture concentrates on chemicals pertinent to their mission as does DOE and DOD. EPA, of course, concentrates on research that is oriented toward the protection of human health and the environment in terms of exposure and risk.

Although the research of the NSF is essentially crosscutting in this regard, it tends to be more basic than EPA's. Because of this difference and the difference in research funding between NSF and EPA, we have no special mechanism for mutual planning. The NSF <u>accepts</u> proposals for funding basic scientific research whereas EPA <u>requests</u> proposals for research designed to meet regulatory needs. Since there is no way in advance to determine what proposals will be received by the NSF, mutual planning cannot be conducted. On the other hand, it is very unlikely that research proposals duplicating research in EPA will be funded by NSF due to their rigorous review mechanism.

In summary, groundwater contaminant fate research is an extremely broad and complex area which is receiving attention by many scientific institutions in this country and abroad. In the main, the goals and approach to this research are based upon the mandate under which it is being conducted. It seems that overlap is best kept to a minimum by the transfer of information and continuing coordination.

NATIONAL INSTITUTES OF HEALTH - RESEARCH OVERLAP

Question: There are potential overlaps with National Institutes of Health (NIH) issues as well. A review of your cooperative agreements for Fiscal Year 1986 identifies 15 projects totalling $1.45 million, all of which seem to be basic health science, rather than directed researeh. Let me give you one example: You are giving one university $152,000 for a study on "validation of human in vivo mutagenicity assays by longitudinal study of breast cancer patients." I would think NIH might be a better home for this study. What steps have you taken to ensure that EPA is not a funding source for failed NIH studies?

Answer: We do not have a formal mechanism in place to identify projects rejected by NIH to ensure that EPA does not fund them nor do we think this is necessary. We think we have appropriate controls in place to ensure that our funds are spent on projects that are scientifically sound and relevant to the mission of EPA. The scientific soundness is determined by peer review prior to funding of specific projects and periodic peer review of each laboratory's overall science program. Programmatic relevance is determined by research committee discussions of research needs, and program reviews of each laboratory's work.

There are similarities in the work conducted by various Agencies, and titles of projects can be misleading. The complexity of normal biologic processes is enormous, and little is understood about the events leading from exposure to environmental toxicants and disease. Work conducted at NIH is basic health science while ours is directed towards supporting specific regulatory activities. Studies done by EPA, such as follow-up of cancer patients, are performed to validate animal models for use as risk estimates, for validating risk assessment models and for developing methods that can be applied to exposed populations to detect adverse effects prior to expression of disease so exposures can be mitigated.

The study in question has not been designed to look for risk factors for breast cancer, but rather to compare the biomarkers in individuals with and without cancer to attempt to understand the relationship between cancer and these biomarkers better. In addition, some of these women will be receiving therapeutic doses of known toxic agents (e.g., anti-neoplastic drugs and radiation); this will allow observation of changes in the biomarkers with

known levels of toxic exposure. Finally, the data collected in this project can be compared to animal data, thus improving our ability to do animal to human extrapolations in risk assessment of environmental agents. Thus, the study will provide results which will help reduce the level of uncertainty that EPA risk assessors must face in estimating human health risk.

The research conducted by EPA on human health effects and on health risk assessment uncertainty reduction is almost totally work initiated by EPA scientists in order to provide knowledge that will enable the Agency to more accurately estimate human health risk so that our regulatory decisions have a sound basis. EPA projects are concerned with determining what health effects may result from exposure to environmental pollutants, and with improving our ability to estimate human health risk from available dose-effects data.

Question: What have you done to ensure the minimum overlap with NIH?

Answer: We try to minimize overlap by carefully reviewing our proposed projects to make sure that not only are they scientifically valid but that they are relevant to EPA's goals and by actively seeking collaboration with NIH where missions are complementary.

WELLHEAD PROTECTION PROGRAM

Question: On page DW-32 of your budget justification, you are asking for $8 million for initiation of the wellhead protection grant program, intended to provide still another mechanism for States to deal with groundwater protection. You reported last year that about 34 States either had or were well along in developing ground water protection programs, with the rest initiating activity. This program would be a further step, with significant potential for becoming as large as the wastewater construction grants program. Initiating an additional new program on groundwater seems to fly in the face of your recent report on environmental problems where you state groundwater consistently ranks as a medium or low priority. Is EPA fully committed to initiating this kind of grant program, and finding the hundreds of millions, and eventually billions, of dollars that will be necessary to implement wellhead protection?

Answer: The Safe Drinking Water Act Amendments of 1986 established in EPA a new grant program to the States for protecting areas around public water drinking wells and wellfields. The Wellhead Protection program has been designed to assist States in preventing contamination of those groundwater resources which may adversely affect human health. Although this program complements and strengthens States' efforts in the development and adoption of a groundwater protection strategy, i.e., a general framework for addressing groundwater issues, the Wellhead Protec-

tion program focuses on specific groundwater resources that serve as drinking water supplies. The EPA comparative risk study ranked drinking water among the highest non-carcinogenic health risk sources and within the top-third for carcinogenic risk. Since over 50 percent of drinking water is drawn from groundwater resources, protecting the wellhead areas and wellfields from contamination is certainly consonant with health risk reduction efforts.

The Wellhead Protection program, by statute, recognizes that the States have the principal role in protecting groundwater. This program is intended to be a State-developed and State-administered program whereby each State has maximum flexibility in determining protection efforts tailored to specific institutional conditions and hydrogeologic settings. Moreover, the statute allows for States' discretion in participating in this program. If States choose not to apply to EPA for a wellhead protection program, they only lose the opportunity for associated Federal funds. EPA does not have the authority to put a program in place if the State fails to do so. Therefore, the national role is one of leadership and advancement of knowledge rather than the imposition and enforcement of unilateral requirements.

We do not believe that by carrying out the congressional mandate to provide Federal assistance for a State-based Wellhead Protection program, EPA is committing itself to an effort that could eventually cost billions of Federal dollars. The authorization levels for Federal assistance for this program are limited to $20 million annually for 1987 and 1988 and $35 million annually for 1989-1991.

WELLHEAD PROTECTION GRANT PROGRAM

Question: If EPA is not going to be able to fund this program in the long run, and since nearly 70 percent of the States are on the path to ground-water protection without an implementation grant program, how do you justify initiating a completely new grant program?

Answer: The Wellhead Protection Program was established by Congress in the Safe Drinking Water Act Amendments of 1986 to assist States in developing and implementing activities which will prevent any contamination of public water supply wells and wellfields that may adversely affect human health. The law authorizes this program through fiscal year 1991 and directs EPA to provide financial assistance to the States for 50-90 percent of the costs of program development and implementation.

This program focuses on a specific issue related to ground-water resources and, in that way, is different from the ground-water protection strategies which States are developing and adopting through a Clean Water Act (Section 106) grant program which has been in effect since 1985. This Federal program provides assistance to States in establishing a framework for assess-

ing groundwater resources and in strengthening their capability to protect groundwater quality. The specific activities for wellhead protection, delineated in the WHP authorizing legislation, are outside the general scope of a State groundwater protection strategy. Thus, in response to the congressional mandate set forth in the Safe Drinking Water Act Amendments of 1986, EPA is initiating the Wellhead Protection Program to assist States in carrying out these specific activities.

WASTEWATER MANAGEMENT IN PUERTO RICO

Question: In 1986, the Inspector General's Office issued a report on findings from its special review of wastewater management programs in Puerto Rico. This report noted hundreds of millions of dollars had been expended ineffectively in an atmosphere of poor internal controls, procrastination and law enforcement. This issue was the basis for my Golden Fleece award last January to EPA, I might add. Mr. Martin, is the Agency any closer to solving the wastewater management problems in Puerto Rico?

Answer: I consider the personal attention to this issue, on the part of both the Administrator and the Regional Administrator, to have been exceptional. I believe that PRASA has developed reasonable plans for actions to correct many deficiencies identified in our special review report. I am pleased to note that some work is currently underway and improvements are being made.

However, I am only cautiously optimistic about PRASA's ability to resolve significant problems. During a visit to Puerto Rico in March 1987, we observed a mix of positive and negative results from on-going corrective actions of PRASA and its contract consultant, Metcalf and Eddy. Of primary concern, we found indications that the Agency's enforcement strategy is not clearly defined and implemented. Enforcement records show a mix of forceful actions to achieve compliance through the U.S. District Court and continuation of negotiations towards a final consent order, even though such efforts have been unsuccessful over 2 years.

I am also concerned that the information contained in the most recent report of the Federal Court Monitor shows continued unsatisfactory operations at numerous PRASA wastewater treatment facilities. For example, the report states that 87 percent of the facilities monitored under the consent order are discharging effluent of unacceptable quality (up from 78 percent in 1981).

We intend to continue our assessment of the status of corrective actions through evaluation of EPA and Court Monitor Quarterly reports. We will also make further status review visits and periodically advise EPA of the adequacy of corrective actions we see.

STATE GRANT LEVEL

Question: You have asked for $33.4 million in Public Water Systems Grants, level funding from the current estimate. The State drinking water administrators have suggested that this will be approximately $20.8 million short of the cost of implementing the first two of five regulatory packages resulting from the Safe Drinking Water Act Amendments of 1986. In addition, those Amendments require monitoring of all 80,000 public water systems to determine if they are contaminated by chemicals that are not in the regulatory agenda. That will cost $5.68 million for the first round of testing, potentially paid by EPA or the States. Does you budget request include the cost of this monitoring?

Answer: No, the budget request did not include the cost of monitoring for unregulated contaminants. In FY 1988, no "new" standards (i.e., standards for contaminants presently unregulated) will be in effect. Only the largest systems serving over 10,000 people are required to monitor for regulated/unregulated volatile organic contaminants (VOCs). These systems are not eligible for grant support under Section 1445(a). The request of $33.4 million accounts for State oversight of compliance with VOC monitoring requirements. The monitoring requirements affecting non-transient water systems for medium-sized systems will not be in effect until 1989.

Question: If you had to pay for that monitoring, what other parts of your program would you not be able to pursue?

Answer: Diverting $5.68 million in Federal funds to pay for systems' unregulated contaminant monitoring would reduce current technical assistance and enforcement efforts against significant health violations of current drinking water standards. States' first priority is to reduce the "clear and present dangers" entailed by contaminants like lead, pathogenic microorganisms, disinfection by-products and radionuclides, each of which pose significant health risks to millions. The funds in question can either be used to relieve systems of the responsibility that should be their own or to support the States in helping systems deal with the health threats they have right now.

Question: What elements of state drinking water programs will go unimplemented in light of the $20.8 million shortfall, and what additional elements would not be done if the states had to pay the $5.68 million monitoring costs, assuming no increase in your drinking water budget, or in the states grants?

Answer: If the States genuinely believe they cannot implement their new responsibilities without an increase of such magnitude, then we would assume that the new responsibilities will not be implemented. However, it is important to keep in mind that it is 1988 that is under consideration. In reviewing the regulatory

development schedule and the other statutory deadlines, States are incurring relatively few new responsibilities next year. In 1988, no new standards (i.e., standards for contaminants presently unregulated) will be in effect (i.e., enforceable); only the largest systems will be on tap for monitoring regulated/unregulated volatile organic contaminants. The surface water treatment rule, a new MCL for microbiological water quality and other new standards (a large number of which are revisions of existing standards) will only be promulgated next year. If there truly is a major resource shortfall accruing from new statutory/regulatory requirements, it will not occur in 1988.

However, your question is germane to the next few years: substantial new responsibilities will land upon the States after 1988. In assessing the long-term prospects, States will have to contemplate major changes in their operations. The estimated resource-need cited, probably does not consider state prioritization of traditional, non-regulatory activities, such as review of new facility construction plans, that they may be able to eliminate. These kinds of activities, while a worthwhile, productive and preventive service, may be an unaffordable luxury. Such activities have little to do with the tasks Congress has set forth as essential; the States should seriously consider their true resource need to accomplish the statutory essentials.

SMALL WATER SUPPLY SYSTEMS

Question: In the last year, EPA has proposed extending the concept of community water systems to those which serve non-transient populations in formerly non-community systems like schools and factories. This would add about 20,000 more small water systems to EPA's enforcement agenda. Since your budget request is level, should we assume that you have adequate resources to provide technological assistance to those new systems?

Answer: In FY 1988, by phasing implementation over a 5-8 year period, we believe the States initially will be able to provide adequate support and technical assistance to these non-transient non-community systems within their budgeted level. EPA will support State efforts through an outreach and public information program directed at citizen groups and water systems to generate voluntary compliance. The impact of regulating these systems and implementing the new requirements will be considered as EPA formulates its budget in future years.

Question: Do the States have the capacity to deal with these systems under your budget request?

Answer: In 1988, we believe that initially the States will be able to deal with the phased implementation of the regulations to cover the non-transient water systems serving schools, factor-

ies, etc.,. The impacts of these systems as well as the new requirements under the Amendments will be considered as the Agency formulates its budget in the future years.

INTERDISCIPLINARY PROGRAMS

Question: Now we'll move to the Agency's Interdisciplinary Program which cuts across programmatic lines and is not readily assignable to a specific media. The request of $54.6 million is a net reduction of $2.2 million below the revised level. Research and Development would take the largest cut -- $3.3 million below current estimates. Tell us how you would implement the proposed reduction in your research and development budget.

Answer: The Interdisciplinary Research and Development program supports Quality Assurance Management, Technical Information and Liaison, Scientific Assessment and the Exploratory Research Program. The proposed reduction in the Interdisciplinary Research and Development program will be implemented primarily through a reduction in the Exploratory Research Program.

In 1988, we are requesting a total of $15.6 million and 9 workyears to continue operation of our Exploratory Grants and Centers program. Funding for Exploratory Grants will be reduced by $3.5 million from the current 1987 level reflecting the fact that we did not sustain the $3.0 million that Congress added for the Exploratory Grants program in 1987. However, the funding level we have proposed for 1988 is consistent with the level of funding originally proposed in the President's 1987 Request and we think it is adequate to meet program needs. The "Centers of Excellence" component of the program will continue to be funded at the current 1987 level.

HISTORICAL ENFORCEMENT AND RATE OF GROWTH

Question: How does the Agency's request compare to historical enforcement levels? The rate of growth since 1986 is roughly 17 1/2% including the current budget request. Can you put this in some perspective?

Answer: In Fiscal Year 1988 the request for Interdisciplinary Enforcement totals $21,511,000 and 409 workyears. These figures include Headquarters and Regional legal enforcement, the National Enforcement Investigations Center, and the Criminal Investigation Program. In Fiscal Year 1986 the actual levels were $17,758,100 and 356.6 workyears. The growth between the FY 1988 Congressional Request and the Fiscal Year 1986 actual level is approximately 21 percent for the dollars and 14 percent for the workyears.

In a historical perspective, from 1980 to 1984, the total Agency enforcement workyears as a percentage of total Agency workyears ranged between 14-17 percent. Since 1985, the portion of

the Agency's total workyears to enforcement has increased steadily to 23 percent in 1988.

EXPLORATORY RESEARCH

Question: In recent years, EPA's research and development program has changed significantly, partly due to funding changes and policy shifts. Significantly affected by these changes has been exploratory research which has decreased consistently over the past few years and is scheduled to decline by $3.5 million under the request. Where does this program stand and what are the plans for it in the future?

Answer: The programs in the Office of Exploratory Research (OER) have all been essentially level over the last few years with the exception of the Office's grants program. The FY 1988 President's budget actually has a $250 thousand increase for the grants program over the FY 1987 President's Budget. However, the President's Budget is roughly $3.5 million less than the FY 1987 appropriated budget reflecting the fact that we did not sustain the $3.0 million that Congress added for the Exploratory Grants program in 1987. We have found the exploratory research program effective and plan to continue it for the foreseeable future. Our continued interest in (and support of) this program is demonstrated by our request for the grants program in the President's budget for FY 1988.

Question: Some are concerned that future regulatory actions might be impaired by the lack of sound research. Is this an unjustified fear?

Answer: Sound research will be available to support future regulatory actions if: 1) the research agenda is planned appropriately to respond to future regulatory needs, and 2) the research conducted is of high quality. EPA's Office of Research and Development (ORD) has taken, and continues to take steps to ensure that the two objectives are met.

To plan an appropriate research agenda, ORD makes extensive use of Research Committees. These are bodies made up of senior managers from EPA's regulatory, regional, and research offices. The Committees advise top ORD management on priorities and needs for research that support EPA's implementation responsibilities. Using input from the Research Committees, ORD plans a research program that will deliver the scientific and technical products to support future regulatory actions.

To ensure high quality of research results, ORD makes extensive use of peer review processes. Panels of outside experts review research conducted by ORD, and these reviews can take place during any or all of the three phases of operation: 1) at the proposal stage, 2) while the research is in progress, or 3) when reports of completed projects are issued. The reviews of

experts ensure that appropriate scientific standards are met and that the research results are acceptable to the scientific community.

Through these measures, EPA and ORD make every effort to ensure that sound research will be available to support future regulatory actions.

COOPERATIVE RESEARCH WITH INDUSTRY

Question: What about cooperative research with industry?

Answer: The Office of Environmental Engineering and Technology Demonstration has an aggressive program to conduct cooperative research with industry. Under the Superfund Innovative Technology Evaluation program, we are working with industry to demonstrate Superfund cleanup technologies at Superfund sites. Industry also participates with us in the development and demonstration of air pollution controls, such as the Limestone Injection Multi-Stage Burner technology. Another area where we are working closely with industry is the evaluation of leak detection methods for the Underground Storage Tank program. Finally, we have a testing and evaluation facility in Cincinnati, Ohio, where we do cooperative wastewater treatment technology evaluation.

Question: Do you have such programs in research areas where Federal funding has decreased, yet where research needs have remained high?

Answer: Of the cooperative industry research areas above, only funding for the evaluation of leak detection methods has been decreased. It should be noted, however, that as part of the Agency's Leaking Underground Storage Tank (LUST) program, ORD has received an additional $760 thousand in both FY 1987 and FY 1988 to provide technical support for corrective actions at leaking facilities. It is anticipated that in the long-term this new work will involve cooperative research efforts with industry and thus mitigate any short-term reduction in this effort.

INTERDISCIPLINARY RESEARCH ON DESERT ECOLOGY

Question: Last year you commissioned a study to develop a plan regarding the scope of an interdisciplinary research program on desert ecology using the Great Basin of Utah, Nevada, Idaho and Oregon as a model for the significant impacts of environmental pollution and other human use disturbance. What is the current status of that plan?

Answer: A study to develop the research needs of the Great Basin Desert Ecology program has been completed. This study was designed to describe estimated duration, costs, and level of

importance of the research area. There are twelve major topical research areas outlined in the study with an estimated total cost of about $14 million.

Question: When do you expect the plan to be implemented?

Answer: A proposal from Utah State University is in preparation which will address four of the identified areas of research needs. The estimated budget for this program is about $300 thousand. This program will be started in FY 1987.

SUPERFUND MANAGEMENT

Question: The Superfund program is one of several major management challenges within EPA, and with the rapid growth of the fund, I am concerned about how ready you will be to manage the effort. I note, for example, that in fiscal year 1988, you are increasing outlays by 63%, but workyears increase by only 22%. In another example, you have over $550 million in contract support to do all the basic remediation planning, and there are only two contract officers assigned to these contracts. It seems to me that if you are going to increase your work force by 22%, a big jump, then you are going to have to limit your outlays to a relatively similar growth rate. Do you have some secret potion by which to turn your superfunders into super-managers?

Answer: Projected EPA staff needs devoted to the management of response actions are based on a set of detailed "pricing factors" which vary according to the phase of cleanup at each site being addressed. The factors used for our FY 1988 budget request are consistent with prior experience and our current estimates of the impacts of the Superfund Amendments and Reauthorization Act. The projected 63 percent increase in outlays is largely attributed to an increase in the number of planned remedial action projects. The projects typically have a substantially higher dollar cost per FTE than planning and design studies. Effective management of contractor resources in the Superfund program is a high priority. Our request for 1988 contains almost 250 workyears for contract management. This is more than double the 1986 level of approximately 115 workyears. In addition, we will continue to rely on the States and other Federal agencies (e.g., Corps of Engineers) to provide resident inspection and construction management services for the remedial action projects. This will supplement the 22 percent increase in EPA workyears.

COST EFFECTIVENESS OF SUPERFUND MANAGEMENT

Question: I'd like to pursue this issue another step. If you have limited in-house personnel resources then you have to go to outside contractors, and I wonder how efficient this is. For example, you have a $46.7 million contract to manage the analysis of chemical samples which come from Superfund sites. These people

do nothing but figure out where to send samples, and check on the quality of the analysis done. They don't ship out bottles. They don't do any chemical analysis. They never see any samples. They sit behind a computer terminal and talk to people on the telephone. The company who does this for you told my staff that they process about 5,000 samples a month, and order another 2,000 samples a month on top of the field samples. This works out to about $140 per sample just to make a few phone calls. One of your former employees tells my staff that this could be done in-house for a lot less money. Have you studied the cost-effectiveness of your Superfund management program recently? Can you account for this kind of inefficiency?

Answer: The contract in question is the Sample Management Office (SMO) contract.

The $46.7 million covers a four year period. Approximately $30 million of the $46.7 million is used exclusively to subcontract for the performance of specialized chemical analyses in support of non-routine Superfund needs. The remaining $16.7 million funds activities actually carried out by the SMO.

The services provided by the SMO do include the coordination of all Superfund sample analyses requests from booking and matching the specific requirement to an appropriate laboratory, through sample tracking and trouble-shooting activities. The SMO also performs highly technical quality assurance reviews of each of the approximately 5,000 monthly sample data packages for technical contract compliance as an internal quality assurance control for the entire Superfund laboratory analysis program. Performing invoice validation and detailed accounting services on over 300 EPA laboratory contract invoices per month in support of the Agency's site-specific cost-recovery activities is another function of the SMO.

The SMO coordinates all sample bottle shipments to the Regions and procures and awards competitive subcontracts for every Regional special analytical service request (over 140 subcontracts per month). Additionally, the SMO supports other primary program requirements such as arranging and managing technical caucuses, workshops, and other meetings; supporting the development of contractual statements of work (SOWs) and other invitation for bid (IFB) documentation; designing and producing program documentation (user's guides, traffic reports); and supporting and participating in Regional and program user training activities.

LANDFILLS

Question: Does EPA plan to work with states to establish criteria for addressing the 20-year capacity issue for hazardous waste landfills contained in Superfund?

Answer: Section 104(k) of SARA requires that States, within three years of enactment, provide assurances to EPA that they have adequate hazardous waste treatment and disposal facilities to meet their 20-year needs. EPA staff have been actively working with the States to iron out a number of technical and procedural issues so that the provision can be effectively implemented. EPA has contacted the National Governors' Association (NGA), the Association of State and Territorial Solid Waste Management Officials (ASTSWMO), and the Consortium of State Hazardous Waste Siting Authorities for technical advice on implementing the provision. EPA has collected and reviewed 24 State planning documents. EPA has consulted with three State representatives on the Superfund implementation workgroup concerning the project. Currently, EPA is in the process of negotiating a cooperative agreement with the NGA to set up a series of joint State/EPA workgroups, the purpose of which will be to determine how States can provide appropriate capacity assurances with a minimum of red tape. EPA Administrator Lee Thomas has written all of the Governors and notified them of the NGA workgroups and encouraged their participation. Issues likely to be discussed in the workgroups include the roles of generation and capacity data, waste minimization, interstate agreements, and State planning processes in providing assurances. EPA expects to use the findings of the NGA workgroups to implement the State capacity provision.

EPA ASSISTANCE TO STATES

Question: In order to meet Superfund requirements, EPA must work with States. Is there any masterplan to help States meet requirements and take advantage of new money?

Answer: With the passage of SARA, EPA has undertaken numerous initiatives to meet the State involvement requirements of SARA and otherwise to encourage and involve States in the implementation of the program. State representatives have been invited and are heavily involved in numerous EPA workgroups charged with developing revisions to the National Contingency Plan (NCP). State involvement has been particularly active in the development of Subpart F of the revised NCP that deals with State involvement and State/EPA interaction during the response process. The draft of Subpart F calls for development of a Superfund Memorandum of Agreement (SMOA) between each State and EPA. The SMOA is intended to describe in detail the response process relationship between EPA and the individual States. EPA has provided additional resources for the training for the staffs of State and local agencies. In addition to funding that has been available to States on a site-specific basis in the past under CERCLA, SARA also provides funding for State core Superfund program activities. EPA also intends to encourage States to apply for funds to staff and implement expanded preliminary assessment/site investigation activities and potentially responsible parties (PRP) enforcement and oversight activities.

70-539 - 87 - 24

Question: If EPA hires more staff to implement Superfund can some of them be detailed to States to help with State programs? I am especially concerned that some States that have some of the worst problems miss out on cleanup because they are understaffed. For example, in Wisconsin we have about 30 sites listed on the National Priority List but only 8 employees at the State level to do the work, but about 100 extra employees will be hired at the Chicago Regional EPA office for Superfund work.

Answer: EPA has examined the State staffing of the SARA requirements to ensure greater State involvement in the national response process. In addition to funding that has been available to States on a site-specific basis in the past under CERCLA, SARA provides the opportunity to fund State core Superfund program activities. Also, EPA intends to encourage States to apply for funds to staff and implement expanded preliminary assessment/ site investigation activities and potentially responsible party (PRP) enforcement and oversight activities. With this expanded funding, States will be able to hire additional staff to conduct Superfund work.

REGION V SUPERFUND ISSUES

Question: Why is EPA planning to reduce the number of RI/FS investigation and cleanup proceedings in Region 5 despite the mandate of Congress to do more cleanup and the availablity of additional funds?

Answer: EPA is not reducing the number of cleanup actions in Region V. In fact, Region V will be doubling the number of new and ongoing remedial projects from FY 1986 to 1988 (93 in 1986 and 181 in 1988). EPA's top remedial priority in FY 1987 and 1988 is to move projects started in prior years through the planning phases and initiate actual site cleanup. This focus will allow the Agency to meet the mandated schedule of remedial action starts called for in SARA. At the same time, the Agency will continue to implement a nationally balanced program of new RI/FS starts at a pace which will allow us to meet the RI/FS start schedule contained in SARA.

STATE ATTORNEY-GENERAL CERTIFICATION

Question: With regard to the Resource Conservation and Recovery Act what is the policy of the Agency concerning certifications by State attorneys-general that States have sufficient authority to carry out the requirements of the act? I am very concerned that States have had to go back to EPA several times to revise regulations and even pass new laws although the States' top legal officers have found sufficient authority.

Answer: 40 CFR Section 271.7 requires that the Attorney General's Statement include citations of statutes, regulations, and judicial decisions which demonstrate that the State has

adequate authority to administer its program in lieu of the Federal program. The Agency has recommended that the Attorney General's Statement also include a narrative analysis of whether, why, and how the cited authority provides sufficient legal authority for the State program. In reviewing Attorney General's Statements for interim authorization, however, the Agency found that in some instances narrative analyses were not provided. Where such analyses are missing or incomplete in an Attorney General's Statement for final authorization, and the Agency's review of the cited authority indicates that the law or regulation is ambiguous or does not appear to meet the Federal requirements, the Agency may ask the Attorney General to supplement his statement. He would be asked to address specific legal issues raised by the Agency's review of the State statutes and regulations cited by him. On occasion the Agency may also ask that the Attorney General clarify or expand a prior narrative analysis.

The purpose of these requests is not to "second guess" the State Attorney General on matters of State law, but to ensure that he has not overlooked major legal issues in arriving at his opinion. Most importantly, the Agency must have a sound legal record for authorizing the State program. Without further comment from the Attorney General on certain issues, the Agency generally cannot determine whether there is a plausible argument in support of the State's legal position that its laws and regulations meet the requirements of Federal law for State authorization.

HAZARDOUS WASTE MINIMIZATION

Question: Mr. Thomas, you request nearly a quarter of a billion dollars to regulate hazardous wastes. Of this, you appear to be spending only $400,000 toward waste minimization. This is only one-tenth of one percent of your hazardous waste budget. Yet, for every pound of waste that is not generated in the first place, there is far more than a pound of expensive regulatory and enforcement action that will not be needed at all. In relative terms, why isn't waste minimization getting a bigger slice of the pie?

Answer: In 1984, with the passage of the Hazardous and Solid Waste Amendments (HSWA), Congress mandated EPA under §8002(r) to submit a report to Congress on the need for "command and control" regulations for waste minimization. In support of this report to Congress, the Agency conducted detailed studies and analyses on waste generation, source reduction, and recycling techniques of American industry. As part of this two-year effort, the Agency, in addition to identifying past and present practices in waste minimization, also identified numerous incentives and disincentives associated with a generator's decision to minimize. With the information and data developed from this effort, the Agency began the task of formulating a range of options for further promoting waste minimization that would serve two purposes: 1) respond to Congress' request on the desirability and feasi-

bility of "command and control" regulations; and 2) identify the direction the Agency should pursue in developing its own program which would further promote and foster waste minimization as a national policy.

The Agency concluded that the incentives for waste minimization are extremely strong. These incentives include: 1) rising costs of proper waste management; 2) financial liability; 3) siting difficulties; 4) public perception; and 5) permitting burdens. The Agency also concluded that these incentives will become stronger in the next several years with the promulgation and implementation of new regulations governing hazardous waste management, e.g., the land disposal restriction, corrective action requirements, standards for storage and accumulation tanks, and the waste-as-fuel standards. This does not include the many new provisions of the Superfund Amendments and Reauthorization Act which will further promote waste minimization.

The $400,000 shown in the budget supports only the waste minimization study. Most of the hazardous waste budget focuses on the incentives mentioned above. With these incentives in place, the Agency believes that it will significantly promote waste minimization through voluntary means.

HAZARDOUS WASTE (SUPERFUND) ENFORCEMENT

Question: Enforcement actions under your hazardous waste program include attempts to recover the cost of cleaning up waste sites. You have awarded a $12,745,548 contract to an engineering company which acts like a collection agency for your enforcement program. How much money has this contract recovered?

Answer: The Technical Enforcement Support (TES) III and IV contracts are each award fee contracts that have a $12,000,000 plus base. They were awarded in late FY 1986. The areas described in the scope of work include data management, policy support, oversight of responsible party clean up actions, and laboratory work. Cost recovery is also one of the functional areas mentioned in the scope of work for Superfund activities; the projected percentage breakout for usage is six percent of the total contract. Within this cost recovery functional area, there are no collection agency type activities. Work does include development of cost recovery regulations, litigation support, and technical cost documentation.

Question: Will this contract pay for itself?

Answer: Since this contract does not include collection agency type activities, there is no immediate and direct way of assessing the monetary benefit of cost documentation and other litigation support activities. As of February 28, 1987, EPA has achieved settlements valued at $626 million for response actions and $40 million for cost recovery. The principal function of

these support contracts is to develop negotiation/litigation strategy and to provide support to ensure compliance with negotiated or court ordered response/cost recovery actions.

IMPLEMENTATION FUNDING

Question: The budget justification indicates that as new hazardous waste regulations are promulgated, increased emphasis must be placed on their implementation and enforcement, including augmenting state enforcement capabilities. Two major new programs undergoing implementation next year are the underground storage tank and corrective action programs, yet your budget request provides only a 5% increase in its enforcement budget and no increase in state financial assistance. How do you expect to fund implementation of these programs?

Answer: The Underground Storage Tank program is a two part program, including a prevention component and a clean-up, or corrective action, component. EPA's strategy for both components is to build a program that will be implemented primarily by the States. The budget request for state program grants remains constant from FY 1987 to FY 1988; however, that line item covers only the prevention component of the program. Site-related enforcement work will be funded under the Leaking Underground Storage Tank Trust Fund; the Agency plans to have $25 million available for cleanup in FY 1988. The Agency and the States are currently examining options to develop funding mechanisms for State prevention programs over the long run.

The corrective action portion of the RCRA enforcement program budget shows significant increases in both the Regional and State components of the program. Although the overall request for financial assistance to States remains constant, there is an internal shift toward corrective action to deal with releases from facilities. Grant monies to the States for corrective action increase from about $5 million in the FY 1987 to a request for $9 million in FY 1988. There is a complementary change in Regional budgets. Workyears devoted to corrective action increase by 14 percent from FY 1987 to FY 1988; the request also includes a 32 percent increase in contract resources. The Regional budget does show a small decline in compliance monitoring and enforcement as facilities move into the corrective action phase and the States increasingly manage program compliance and enforcement.

Question: Have you priced out what it will cost to implement these programs using pricing factors and workload modeling?

Answer: For the Underground Storage Tank program, there has not been sufficient basis to develop realistic pricing factors, since the factors will depend upon the design of the program as embodied in the final regulations and the cooperative agreements

under the Trust Fund. In April, 1987, the Agency proposed regulations and has now issued initial guidelines for the States to take part in the Trust Fund. The Agency is now in the process of examining how the States will implement these program elements over time and what it will take to do the work. We are coordinating that analysis with our Regional staff and the States as part of the FY 1989 budget formulation.

The corrective action budget is priced based on similarities to the Superfund program when the responsible parties undertake the remedial action at a site. The program assumptions include an initial site assessment, owner/operator investigation and review of corrective action alternatives, as well as the design and construction of the alternative selected for corrective action. The pricing includes assumptions about pricing for the various components; revisions may be required as the Agency gains more experience with RCRA facilities.

SUPERFUND REAUTHORIZATION ISSUES

Question: Mr. Thomas, you touched briefly in your statement on the need to regain momentum in the Superfund program after all the delays and subsequent funding problems regarding its reauthorization. When you appeared before this committee a year ago, the Superfund reauthorization bill was practically stalemated in the conference committee, and the Agency was rapidly running out of funds. You and others were warning of the dire consequences of inaction, saying things like the "program (will be) back to where it was in 1981 and 1982," if it is not renewed at once. Now that Superfund is up and running again, I wonder what lessons we can learn from that experience. To what extent did those predictions come true? Is there anything that could have or should have been done differently?

Answer: Congress acted last spring and summer to provide EPA with about $200 million to maintain essential activities pending enactment of SARA. This mitigated what otherwise would have resulted in serious disturbances to the program.

It is, perhaps, too early to draw general conclusions on the long-term consequences of the legislative stalemate. However, in the short term, three results are clear. First, the slowdown caused us to suspend the hiring needed to support an expanding program. In FY 1987 and 1988, the Agency is faced with a substantial challenge to hire and train the staff needed to initiate and support response activities. Second, our ability to negotiate and finalize settlements with potentially responsible parties was hindered during the slowdown by the absence of the leverage provided by the Trust Fund. Finally, the funding shortfall in 1986 prevented us from initiating remedial work at many sites. This will reduce the number of projects that will be ready for actual cleanup during the current five year authorization.

Question: Were any contracts actually terminated?

Answer: Yes. On October 1, 1986, we sent notices to contractors terminating thirteen contracts effective October 31. EPA incurred no termination costs on these contracts. We reinstated the contracts on October 17, when the Superfund Reauthorization bill became law.

Question: Did EPA lose employees as a result of the program slowdown?

Answer: EPA did not institute reduction-in-force (RIF) activities during this period. However, we assume some employees may have sought employment elsewhere due to the uncertainty of the Superfund program at that time.

SUPERFUND CONTRACTORS

Question: A great deal of the Superfund work is contracted out. Do you have any difficulty finding the people you need to oversee those contracts? Are the contractors able to find the people they need?

Answer: The Agency has conducted an in-depth study of future workforce needs and has implemented an Agency-wide effort to recruit needed staff. To date, the Agency has been able to recruit people with good academic credentials and technical skills, but many lack hands-on project management experience. We are not aware of contractors having problems attracting good people. In fact, with their more flexible salary structures, they may be better able to attract more experienced professionals.

COMPETITIVE RESEARCH PROGRAM

Question: Mr. Thomas, you are proposing to spend $190 million on research and development next year, a decrease of about 6% below current levels of support. Much of the agency's research program used to be operated on the basis of unsolicited proposals which concerned me a great deal when I first chaired the Subcommittee. Moreover, there was a serious lack of adequate peer review throughout the whole system and a number of repeat grants were awarded to the same individuals. What have you done to make the system more open and competitive?

Answer: In order to make research procurements more open and competitive, Agency policy is to use a peer review process to evaluate proposed research. Expert panels composed of combinations of non-EPA experts and in-house scientific personnel are utilized extensively for evaluation of grant applications, cooperative agreement applications, interagency agreements and in-house research.

In the case of grant applications and in-house peer review, the panels consist primarily of non-EPA experts (e.g., Science Advisory Review Board Panels, Competitive Grant Review Panels). In the case of cooperative agreements, the review panel must have at least two extramural reviewers selected by the responsible office director.

The ultimate objective of this peer review process is to improve the quality of science supported by the Agency.

Question: Are project results also subject to the peer review process?

Answer: All Agency scientific documents and presentations are to be of high scientific and editorial quality. Peer review is an important mechanism for assuring high quality publications and presentations. Guidelines for peer review of publications and presentations (EPA Order 2200.4) are applicable to employees acting in an official capacity related to their work for the Agency and also to EPA contractors, consultants and grantees to the extent provided in their agreement with EPA. Therefore, project results are clearly subject to a peer review process.

CHLORINATED DRINKING WATER

Question: I have a list of 14 projects currently funded by the Agency which in my judgement brings new meaning to the peer review process. Perhaps you can enlighten me about the need for Federal support in these areas. I'll just mention a few of these projects now and provide the rest of them for the hearing record.

You are giving one university $160,000 to examine the effect of chlorinated drinking water on cardiovascular disease in pigeons. Tell us how this fits in with your mission.

Answer: Under the Safe Drinking Water Act (SDWA) as amended in 1986, the Agency is given the authority to conduct research to determine the causes of disease resulting directly or indirectly from drinking water contaminants. In addition, the SDWA requires EPA to propose and promulgate national drinking water regulations requiring disinfection of public water supplies within 36 months. Preliminary epidemiologic studies and previous animal toxicology studies (pigeons and rabbits) have indicated that chlorinated drinking water may be associated with the development of cardiovascular disease. The suspected mechanism for this possible association is believed to be the formation of atherosclerotic plaques in the blood vessels. The earlier pigeon study has been reviewed by the National Academy of Sciences and the pigeon was deemed an appropriate animal model for determining human risk factors for atherosclerosis. EPA is conducting this study to independently confirm the previous studies; to develop the appropriate dose response data; and to further delineate the mechanism of action. This information is vital

for the Agency to use in developing an accurate risk assessment and criteria document on chlorine to support the disinfection regulation to be proposed and promulgated by the Agency as required by the SDWA.

ULTRAVIOLET CURING OF PAINTS

Question: Can you explain what value will come from the $50,000 study on ultraviolet (UV) curing of paints for furniture finishers?

Answer: UV light curing of low solvent paints can be considered a potential replacement for solvent-containing paints for various industrial painted products. The use of low solvent paints by industry can have a major impact on industrial volatile organic compounds (VOC) emissions and ozone generation. "The Development of UV Light Curing of Paints for Furniture Manufacturers" is a preliminary study funded in 1986 to define to both the Environmental Protection Agency (EPA) and the Department of Energy (DOE) technical managers the potential and benefits of developing the UV technology for both furniture coating requirements and for other industrial painting applications where it has not been used. The over 230,000 tons per year of VOC emissions from the furniture industry has not been regulated to date due to the lack of technically and economically viable emissions control technologies for this industry.

This study was designed to first define the scope and benefits of the technology to reduce industrial VOC emissions and to reduce both pollution control and manufacturing energy requirements. Therefore, the results of the study would be used by the EPA and the DOE to determine technical and economic advisability of proceeding further with the development of the technology.

Question: What pollution will be stopped as the result of this work?

Answer: If the UV process can be expanded to general industrial painting application, up to 4 million metric tons per year of VOC emissions can be addressed by this technology. VOC emissions which are generated during painting include such compounds as Toluene, Xylene, Hexane, MEK, Glycol Ether, and Trichloroethane to name a few. Thus, these compounds contribute to photochemical oxidant production and the total human exposure to toxic organic pollutants.

INCREASED SOLAR RADIATION

Question: How will you use the information you get from the $145.8 thousand study on plant resistance to increased solar ultraviolet radiation?

Answer: Preliminary studies of laboratory and greenhouse exposure of terrestrial plants to ultraviolet radiation (UV-B), utilizing about 140 species, indicated that about two-thirds of the species showed some level of damage. This raised a need to determine the limits of uncertainty and to put this information into perspective in view of the steadily increasing level of UV-B predicted over the next century. There is a need to determine if field experiments will verify the damage found in preliminary studies. Even though the number of species studied is small, more food plants (both agronomic and horticultural) need to be examined. If damage is consistent in the field verification work, we need to know how to protect our food supplies, i.e., is there a genetic basis for resistance? Is there a particularly sensitive life stage, i.e., juvenile; at pollination time, etc.?

Question: Don't we already know that increased solar ultraviolet radiation is bad?

Answer: There are several research issues associated with terrestrial plant exposure to ultraviolet radiation. For example, there is a need to know how significant the effects of exposure are as well as how to remedy the damage. In addition to the plant resistance study mentioned above, forest tree species need to be surveyed more extensively because of their economic and ecological value. To date almost no work has been done in this area.

Also, damage to marine phytoplankton has been demonstrated but more work needs to be done to interpret the potential impact this damage may have on specific marine fisheries of value to humankind as a food resource.

AIR POLLUTION MODELING IN CHINA

Question: While I appreciate the value of international gestures, why do we need to spend $28,714 on air pollution modeling in China?

Answer: The project in question falls under Annex III of the U.S.-Peoples Republic of China Protocol for Cooperation in Environmental Science and Technology, renewed in December 1984. A model to determine sources of particles (based on their chemical composition) is being developed jointly by U.S. and Chinese scientists and is being applied to measurements of particle pollution in both countries. EPA's Office of Air Quality Planning and Standards has listed particulate modeling as one of their top research priorities because of the need to help States comply with the NAAQS for particulate matter. By using resources from the China program, we are able to validate the model against two data sets -- Chinese and U.S. -- rather than one, thus increasing confidence in the reliability of the model.

We anticipate two additional tangible benefits from this project. First, one component of the task is development of an improved particle sampler. Once validated, this sampler will be valuable in our studies of ambient particulates and total exposure.

Second, the project will improve environmental measurements which will improve the reliability of health effects studies. This is due to several reasons. Certain air pollutants, including particles, occur in greater concentrations in China, resulting in stronger cause/effect and dose/response associations. People in China are geographically less mobile than the U.S. population, which means that it is easier to obtain reliable data and medical histories. Finally, the actual cost of collecting such data and providing monitoring support is considerably reduced in China because of the lower cost of living.

FEEDING TECHNIQUES FOR CLADOCERAN CRUSTACEA

Question: Another project which seems more like basic research than directed research is the $50,000 study of feeding techniques for Cladoceran Crustacea. What does feeding these shellfish have to do with your environmental protection mission?

Answer: Ceriodaphnia, which are small freshwater Cladoceran crustaceans, have a short generation time for producing offspring. The use of toxicity tests using Ceriodaphnia has recently become widely accepted as a way to determine the chronic toxicity of toxic substances and effluents. This test is being used with a high degree of frequency to regulate the discharge of toxics. Because of this, the need for reliable test results is very important. In addition to a standardized test procedure, a good reliable food is important to producing toxicity test results which can be used for regulatory action.

The use of a standardized food will assist in the quality assurance aspects of the test by providing more uniform organisms for use in tests. This will lead to more consistent results among the large number of laboratories (30+) performing this test. A standardized food would save time and money for both the private and public sectors that need to conduct the tests. The number of tests and the frequency of testing is anticipated to increase four to five times over the current status.

Question: What regulation will this support?

Answer: The project in question was established to develop a standardized food that can be made in large batches. This food then could be made commercially and thus provide a consistent and reliable food for organisms used in the Ceriodaphnia test. The food would also be available for use in culturing Ceriodaphnia to be used in the toxicity tests.

The EPA uses toxicity test data to assess and control the discharge of toxic substances to the nation's waters in the National Pollutant Discharge Elimination System (NPDES). Guidance on the use of biological testing has been developed and is published by EPA as the Technical Support Document for Water Quality Based Toxics Control.

RESEARCH IN GREECE

Question: Here is another international study that has no obvious relation to your immediate mission. You are giving the University of Patras $39,000 to examine spacial and temporal patterns of environmentally influenced diseases in the nation of Greece. What Americans are going to be protected as a direct result of this project?

Answer: The Project with the University of Patras offers an exceptional opportunity to do an epidemiology study not possible in the United States. By performing the study in Greece we have the following advantages:

1) Dramatic increase in pollution caused by rapid industrialization in postwar Greece to levels higher than those found in U.S. cities.

2) Well characterized family trees that can be especially useful in studying diseases with a genetic component.

3) Well kept birth and death records that are available to our researchers.

EPA may be able to benefit as a direct result of this project by comparing disease-specific mortality rates in U.S. cities that have high photochemical pollutant levels with corresponding mortality rates in Greek cities of similarly high or even higher photochemical pollution. This will permit EPA to test, at very low cost, environmental epidemiological hypotheses based on U.S. data by cross-correlating them with similar data in a completely different cultural setting. Our researchers plan to investigate patterns of cancer, respiratory, kidney and heart disease mortality rates among city dwellers, and compare the pattern of these mortality rates with rural communities. Researchers would also like to compare these disease profiles to populations of U.S. cities having comparable but lower levels of ozone, NO_2, SO_4, heavy metal particulates, and other air quality parameters.

STUDY OF ICE NUCLEATION AND BIOLUMINESCENCE

Question: What about the $78,344 project to study ice nucleation and bioluminescence as sensitive tools for detection? How does this relate to your mission?

Answer: As part of our biotechnology research program, this project is aimed at providing the Agency a tool for tracking the dispersal of genetically engineered microorganisms and for studying the transfer of recombinant DNA.

Question: How does it lead directly to environmental protection?

Answer: If successful, this project will provide a more sensitive tool for dispersal and transfer studies. The Ice Nucleation microbe is being used as a model since much information is already available about it from biochemical, physical and genetic perspectives.

SCHOOL AWARDS

Question: You awarded the following to three schools, all of which are questionable: $14,120 to examine gene engineering of yeasts for the degradation of hazardous waste. This sounds like basic research. How will you use this study to directly support an EPA program?

Answer: The examination of gene engineering of yeast for the degradation of hazardous waste is applied research which will lead to an improved biological treatment technology for recalcitrant chlorinated hydrocarbon hazardous wastes (e.g., dioxins, PCB, etc.). By modifying naturally occurring microorganisms, we can exploit the natural degradation process and adapt it for cleaning up Superfund sites, for treating hazardous waste at the point of production, and for cleaning up closed treatment storage disposal facilities.

Question: You awarded $100,742 to examine the effect of foreign genes on the virulence of pathogenic fungi. What regulatory effect will this project support, and what environmental threat is now before us that this will help mitigate?

Answer: Many biotech companies are conducting research with fungi. The Agency has already received permitting requests for fungal biotechnology products. Little is known about the pathogenicity of many fungi. This project is intended to provide information about genetic control of pathogenicity in fungi, the effects of genetic modification on pathogenicity and environmental effects related to alterations in pathogenicity. It will provide a basis for responding to the questions raised in the process of reviewing permit applications.

Question: You awarded $180,000 to study lanthanide ion fluorescence as a probe for metal binding in humics. This sounds like instrumentation design work - basic research. What rule or specific protective effort will this support? What river will this help clean up?

Answer: This technique will help us determine the binding of metal ions to humic materials. This binding affects the mobility of the ion in both river and groundwater systems. The study will provide a better understanding of the mechanisms of such a binding in order to better model the movement of metals in the environment. It is being conducted in direct response to the Agency's need for regulations for the disposal of toxic metals in hazardous wastes.

MT. RAINIER STUDY

Question: A study is being conducted by one university for $25,187 to examine fog and cloud water chemistry on Mount Rainier. This sounds like an NSF project, not an EPA one. Who is protected here?

Answer: The project in question is part of the joint U.S. Environmental Protection Agency (EPA)/U.S. Forest Service (USFS) Forest Response Program. It is managed under the Western Conifers Research Cooperative. The purpose of this research effort is to evaluate current and future responses of western coniferous forests to atmospheric deposition.

Question: What does this have to do with your regulatory efforts?

Answer: The objective of this program is to better understand deposition to high elevation forests as part of a regional assessment of potentially sensitive ecosystems in the West. Atmospheric deposition is suspected of having important effects on the growth and productivity of forest vegetation. Our research is attempting to quantify the magnitude of suspected effects and to investigate mechanisms by which direct or indirect damage might occur. The forest response program is important because of the extent of forested areas in the U.S. and because of the possibility of direct economic impacts on some forest species.

NATIONAL FOOD PROCESSORS ASSOCIATION

Question: You are paying the National Food Processors Association up to $148,707 to study food processing by-products as a contribution to animal feeds. What does this contract have to do with protection of the environment?

Answer: The purpose of this project is to protect public health by more adequately assessing the level of pesticide residues in meat, milk, poultry, and eggs. This will be achieved by gaining a better understanding of what food processing waste byproducts are fed to livestock.

This project will generate current information on the processing of raw agricultural commodities and the nature of the processed foods and associated waste byproducts that may be used as livestock feed. This information will help the Agency in assessing the need for food additive tolerances under Section 409 of the Federal Food, Drug and Cosmetic Act.

The information generated from this project on food processing, in conjunction with more refined assessments of the impact of what livestock are fed, is expected to aid the Agency in developing better estimates of dietary exposure of humans to pesticides. The new Tolerance Assessment System will be employed to develop these assessments.

STUDY OF THE COMMUNICATION OF TEMPORAL RISK

Question: Another educational institution is getting $16,671 to study communication of temporal risk. How will you use that information?

Answer: The project entitled "Communication of Temporal Risk" was submitted as a response to a request for proposals pertaining to benefit-cost issues. The particular project was suggested by the University of California-San Diego to investigate individuals' behavior with respect to risks whose effects occur in the future. For instance, risks that have long latency periods, such as many that EPA is charged with regulating, would be the subject of this inquiry. The project would allow a better understanding of individual discounting behavior; that is, how individuals relate present dollar returns to those received in the future.

The proposal was evaluated in a competitive situation along with a number of other proposals. All proposals were peer reviewed both internally within EPA and by those external to the agency. All reviews suggested that the project would investigate a relevant problem and would be useful to EPA.

The most important use of the project results is expected to be in preparing an EPA position with regards to the current task force to rewrite OMB Circular A-94. The charge of this task force is to evaluate present discounting rules (OMB currently requires the use of a ten percent real discount rate) and to make recommendations concerning new standards. An understanding of individual discounting behavior is essential since it is individual decisions that produce a social discount rate when aggregated. Further, the sometimes long lead times between EPA action and the corresponding health and welfare effects make the social discount rate an important variable in economic analyses conducted within the Agency in response to Executive Order 12291.

EPA'S PRODUCTIVITY IMPROVEMENT PROGRAM

Question: As you know, last year the President established a productivity improvement program throughout the executive branch and set a goal of 20% productivity improvement in selected government functions over the next five years. For its fiscal year 1987 initiative I understand the agency plans to streamline the administration of its grants system with the aid of computers and expects the 20% productivity improvement to be accomplished through automation. What is the status of this initiative?

Answer: EPA's Grants Administration Division has completed the pilot phase of the Automated Grants Documentation System Initiative. The hardware and software are in place. We are waiting for the telephone company to install communication lines in order to make the system fully operational.

Question: Do you anticipate any problems in reaching the targeted productivity goal?

Answer: The Automated Grants Documentation System Initiative should easily reach its goal of a 20% increase in productivity improvement by FY 1992. This initiative is an excellent example of how a small capital investment can result in substantial savings to the Government.

PRODUCTIVITY IMPROVEMENT INVESTMENT FUND

Question: Mr. Thomas, last month you announced the creation of a Productivity Improvement Investment Fund to provide seed money for innovative productivity improvement projects.

How much will you spend this year under the new initiative and how do you plan to allocate these funds?

Answer: The Productivity Improvement Investment Fund will provide seed money for innovative experiments in productivity improvement. In FY 1987, we have set aside $250,000 in order to fund the following types of projects: ADP hardware and software; non-ADP capital equipment; work process studies; and targeted training initiatives.

The Productivity Review Board, a group of senior Agency managers, chaired by Howard Messner, EPA's Assistant Administrator for Administration and Resources Management, will meet in late April, 1987, to select projects to be supported by the Fund.

Question: How much do you intend to set aside next year for the Fund?

Answer: EPA has requested $500,000 for the Productivity Improvement Investment Fund in FY 1988. The request is included in the budget request for the Office of the Comptroller.

Question: What are your plans?

Answer: EPA intends to make the Productivity Improvement Investment Fund an integral part of the Agency's Productivity Improvement Program. We believe that the Fund will provide needed resources to implement the Productivity Improvement Program and increase efficiency while, at a minimum, holding quality and timeliness constant.

In FY 1987 we received 40 project proposals amounting to approximately $1.5 million. Some examples of proposed projects include:

- Liquid Scintillation Alpha Spectrometer that will expedite the analysis of radionuclides and result in a cost avoidance over 5 years of $194,000.
- Basic Training for New Clerical Staff that will train participants in EPA travel, correspondence and office supply procedures.
- Field Inspection Efficiency that will utilize industrial engineers and lap top computers in order to re-design and improve work functions.
- Electronic Publishing that will save $52,000 annually by publishing research documents in-house rather than through an outside contractor.

MANAGERIAL RESPONSIBILITY FOR ACHIEVEMENT OF GOALS

Question: One important element of a successful productivity program is to hold managers accountable for achieving specific productivity goals. One way of achieving this is through their merit pay performance plans or Senior Executive Service (SES) contracts. Does EPA hold managers accountable for productivity improvement? If the answer is yes, how is this done?

Answer: We are considering whether we should develop generic productivity improvement performance standards that would hold each EPA manager responsible for specific productivity improvement goals.

Question: Have you made major awards for such improvements?

Answer: We are in the process of making productivity "grants" to offices through our newly created Productivity Improvement Investment Fund to support specific productivity improvement initiatives. The Fund will be used to provide capital for innovative projects that will serve as a catalyst for change throughout the Agency. One of the projects that we may fund is a Secretarial Suggestion Program, which establishes a pool of money to reward secretarial and clerical staff for ideas that save money.

Question: Are productivity goals incorporated into SES contracts and merit pay plans?

Answer: In addition to considering whether we should incorporate productivity goals into merit pay plans, we are also considering whether similar goals should be included in SES contracts. We expect to decide these issues within the next eight months.

Question: Employee involvement is another important element in a successful productivity effort. Does EPA encourage maximum employee participation and interest in the productivity program?

Answer: EPA fully encourages its employees to be involved in its Productivity Improvement Program. In the Agency's FY 1988 Productivity Improvement Plan that we submitted to the Office of Management and Budget, we planned to have approximately 1,000 Agency employees involved in productivity improvement initiatives in FY 1988. We expect that by FY 1989 at least 1,500 EPA employees will be involved in these initiatives. Further evidence of employee involvement in the Agency's Productivity Improvement Program is the number of project proposals we received from throughout the Agency for our newly created Productivity Improvement Investment Fund. We received more than 40 proposals from seven headquarters offices and seven regional offices. EPA believes that in order for a Productivity Improvement Program to be successful, employees must actively participate in it.

Question: Are productivity savings shared with employees? If the answer is yes, how is this done?

Answer: EPA currently shares savings with Agency offices through the Agency's Productivity Improvement Investment Fund. Virtually every proposed investment project in FY 1987 is expected to yield savings in excess of the amount invested within two years. A portion of these savings are returned to the Fund in the year subsequent to the investment.

Furthermore, we believe that individual incentives should also be provided to individual employees, who develop innovative plans for saving money. Consequently, we are considering initiating a Secretarial Suggestion Program that would provide financial rewards for cost saving ideas.

1988 TOXIC SUBSTANCES REDUCTIONS

Question: Mr. Thomas, you are requesting $1,489,415,000 under operating programs, a net decrease of $4,377,000 below the fiscal 1987 enacted level. Although this is less than a 1% cut below your current operating budget, it assumes a rather substantial cut under Abatement, Control and Compliance. I'm referring to the 67% drop proposed under Toxic Substances activities which would go from the $78.7 million current level to $25.2 million. My comparison, of course, reflects the $47.5

million rescission proposed under this activity which Congress recently denied. So, these funds are now back in your fiscal 1987 base. What kind of policy decisions were involved in cutting Toxic Substances next year?

Answer: The correct FY 1988 President's Budget request for Toxic Substances under Abatement, Control and Compliance is $25.7 million. This is a total reduction of $53 million from the FY 1987 current level of $78.7 million. There are three major pieces in this change. The FY 1988 budget request includes approximately $3.3 million of asbestos funding which is a reduction of $50 million from the FY 1987 current level. The President's Budget also requests $1 million less in the Office of Research and Development because several studies in the epidemiology/exposure methods area will have been completed. The remaining reduction of $2 million reflects the anticipated completion of several asbestos and PCB rulemaking activities in the Existing Chemical Review program as well as the continuation of chemical category and cross-media approaches to existing chemical problems.

ANNUAL LEAVE IN CONJUNCTION WITH OFFICIAL TRAVEL

Question: You are presently considering a change in policy on the use of annual leave in conjunction with official travel. I was responsible for setting this policy several years ago and frankly, I'm concerned over the proposed change.

Paragraph 4(b) of existing policy states - and I quote:

> "Travel-authorizing officials shall not approve official travel where annual leave is involved, except in unique or emergency situations... The travel-authorizing official is responsible for confirming that a justification is shown on the travel authorization for any leave approved in advance over one day."

Under the proposed change, however, EPA would ease its restriction on annual leave to 3 days for domestic travel.

Why do you want to eliminate the one-day restriction? What government purpose would be served in giving employees on official travel the opportunity to take extended vacation in connection with travel?

Answer: The Agency has not made a final decision on this policy. The proposed change in travel policy resulted from an extensive review of all of EPA's travel regulations. Internal Agency comments are now being considered on the full set of revised regulations, including the amount of leave that may be taken in conjunction with official travel.

The part of the leave policy that would change under the proposal is very limited, specifically to require a justification

for any leave over 3 days rather than over 1 day, as is now required. The change is proposed only for domestic leave. In proposing this change, we are in no way condoning the use of travel for other than official purposes, and believe that:

(1) our internal controls over the possible abuses of annual leave while on travel will still exist;

(2) the administrative burden of processing requests for leave in excess of 1 day will be reduced and will make for a more efficient and economical process with strong safeguards;

(3) our analysis over the past two years of this policy shows that EPA has not abused this policy;

(4) employees will be able to more easily use reduced fare flights that require certain dates of departure; and

(5) many EPA employees travel on short notice travel and this policy would minimize conflicts with scheduled leave.

I also want you to know that the proposed policy would require the following before being approved:

° Employees would have to attest that the trip is not being scheduled for unofficial or personal reasons;

° The travel authorizing official is to ensure that such is the case prior to approving the travel; and

° The employee must obtain approval of the leave at least one additional supervisory level than normally required for annual leave--minimally the Division Director.

Further, this change is not intended to give employees on official travel the opportunity to take extended vacations in connection with travel. The above stated controls over annual leave while on travel status are still sufficient to prevent abuses.

I want to assure you that the proposed change would not allow employees to abuse leave. It would not reduce our controls over this leave, but it would reduce administrative burdens associated with the current one day restriction.

Question: Your own Inspector General strongly recommends that you leave the travel regulations as they are. His memorandum to you dated December 3, 1986 states:

"...the restriction on the use of annual leave before and after an official trip was instituted because of serious

abuses on the part of EPA employees. The thrust of current arguments which propose lifting this restriction centers on the need for trust in our employees and the credibility of the Agency today. Frankly, I think this line of reasoning misses the point...The system we have today apparently works. One day of annual leave combined with personal weekend time usually is more than adequate for employees to enjoy a location they may be visiting for official reasons. I strongly encourage you to leave travel regulations as they are."

What's wrong with this argument?

Answer: We agree with the Inspector General that the current system works, and I certainly share his strong commitment to prevent abuse of Federal travel. That is why we circulated the proposed policy change for comment, and we will not modify our existing policy unless we are convinced that the revised policy, with its built-in controls, would be equally effective. I want to note, however, that the "abuses" mentioned by the Inspector General occurred over eight years ago.

As far as whether one day of leave, if combined with personal weekend time, is sufficient for an employee to enjoy a location, I would agree with the Inspector General that usually, but not always, it is. This argument has to be weighed against the equally important fact that much EPA travel is on fairly short notice and may coincide with leave plans made earlier. We should allow our employees the ability to complete those leave plans in conjunction with the travel.

It should also be noted that even under the revised policy our limitations on annual leave in conjunction with travel are more stringent than most if not all other Federal agencies. Further, this not only improves morale and shows trust in our employees, as noted by the Inspector General, but may be less costly to the Federal Government through reduced fares which require certain departure dates. Also, I would like to point out again that if we adopt the proposal, we will not reduce our control over this area.

Question: I'd like to ask the Inspector General if he has any comments he might care to make at this point. Mr. Martin?

Answer: EPA employees travel a great deal in their work. Based on my judgment and experience, the current one day annual leave restriction is the single most effective deterrent against travel abuse that the Agency has. I continue to strongly encourage the Agency to leave this policy intact.

DISCONTINUATION OF REPORT REQUIREMENTS

Question: Paragraph 4(e) of your current manual on travel requires the reporting of any exceptions granted for the use of

annual leave while an employee is on official travel. Why was this requirement discontinued in January 1986?

Answer: Our reporting requirement was modified in January 1986 only to eliminate the requirement that the information be reported centrally each quarter. The change was made to reduce reporting requirements on our regional and field offices. We had no evidence of abuse over the last two years of the policy and felt we could lessen the reporting burden.

BUILDINGS AND FACILITIES CARRYOVER

Question: Why is there such a significant level of carryover funds under Buildings and Facilities? You carried over more than $9 million from last year?

Answer: Of the $9 million carried over, $7.1 million is for new construction projects scheduled for award in FY 1987. These projects include the Montgomery Radiation Laboratory construction contract, expected to be awarded this summer; and the Newport Laboratory design contract, awarded on March 20, 1987. The remaining carryover balance of $1.9 million is for repair and improvement projects that were unexpectedly delayed due to unresponsive bids, or were completed but not obligated as a result of GSA accounting procedures. In addition, funds were purposely set aside pending the outcome of a dispute with a lessor for alterations work. All of the funds in question are expected to be obligated in FY 1987.

OMB CIRCULAR A-106

Question: In its passback budget to the Agency, OMB stated that it was "...very disturbed that EPA does not comply with the requirements of the A-106 process and that future similar requests will not be considered unless they are included." What is the A-106 process and why was it not provided in your submission to OMB under the Buildings and Facilities activity?

Answer: OMB Circular A-106 requires Federal agencies to prepare and submit biannual pollution abatement plans. The plans list out projects at EPA facilities, compliance status, and cost estimates. In the FY 1988 Passback to the Agency, OMB noted an apparent discrepancy between the June 1986 A-106 submission and the portion of the Agency's Repairs & Improvement request identified for environmental compliance activities -the budget request identified more funding for environmental compliance projects than the A-106 submission reported. Part of this difference is because the A-106 report was prepared in the spring of 1986, and listed only known projects as of that date. The Agency conducts ongoing environmental audits at each of its facilities to identify any compliance problems. More projects were identified between June and September 1986, which were then reflected in

our September budget submission to OMB. We have revised our process to get the fullest possible list of projects in both the A-106 report and the Agency's budget submission.

ONE HOUR SO_2 STANDARD

Question: I understand the Clean Air Scientific Advisory Committee (CASAC) has signed off on the criteria document supporting a proposed one hour standard for sulfur dioxide. Please provide the Committee with a summary of the scientific basis for such a standard.

Answer: The scientific basis for a one-hour National Ambient Air Quality Standard (NAAQS) for sulfur dioxide rests on a series of controlled human studies in which exercising asthmatics were exposed to short-term (5-10 minutes) peak concentrations (generally $\geq$0.5 ppm). Such exposures were found to produce bronchoconstriction and symptoms. A majority of the Clean Air Scientific Advisory Committee (CASAC) members found that the effects reported for asthmatics represented "effects of significant public health concern." However, the CASAC found that the number of asthmatics vulnerable to such peak exposures was small. The Committee concluded that the size of the group to be protected by a NAAQS was a legal/policy matter and the Committee had no specific scientific advice to provide on it.

ONE HOUR SO_2 STANDARD

Question: Several States currently require compliance with 3 hour SO_2 standards. Which States are now enforcing this type of standard and at what level? Do any States currently require compliance with a one hour SO_2 standard? If so, which States and at what ambient concentration?

Answer: EPA has no listing of compliance methods associated with EPA approved State implementation plan (SIP) emission limits for sulfur dioxide (SO_2). As required by section 110(n) of the Clean Air Act, we do publish a compilation of approved SIPs, but these are comprehensive -- for all air pollutants. SO_2 emission limits and compliance methods have not been extracted, in either summary or detailed form from this voluminous publication.

Our past Agency guidance to States in the development of their SIPs was that the most straightforward way to insure that all of the SO_2 ambient air quality standards are protected is to limit maximum emissions, over the averaging period of the governing air quality standards, to a level which insures attainment of the governing ambient standard. (In most cases, the 3 hour or 24-hour ambient SO_2 standard governs.) Two possibilities exist to satisfy this short-term compliance requirement:

(a) A short time duration (1 to 3 hours) source test to measure stack SO_2 emissions, or

(b) Emission limits specified in terms of 3-hour or 24-hour compliance averaging times, and enforced by continuous emission monitors (3-hours), or fuel sampling (24 hours).

EPA will aprove SO_2 SIP emission limits expressed either way. However, most States have chosen to determine compliance with approved SO_2 emission limits with the source stack test. EPA does not require, as a condition of an approved SIP, SO_2 compliance over a 1-hour time frame.

---

* 24-hour fuel sampling is approvable as the only compliance method if the 24-hour ambient air quality standard governs.

ONE HOUR SO_2 STANDARD

Question: What are the differences in annualized costs and emission reductions that would be required for each state if a one hour SO_2 standard of .25 ppm were required as compared to passage of the Proxmire - Simpson acid rain bill (S. 316)? A one hour SO_2 standard of .5 ppm?

Answer: Comparisons of the utility annualized costs and emission reductions for S. 316 and a one-hour standard of 0.5 parts per million are shown below. The Agency has not developed comparable information for a 0.25 standard. Emission reductions for eastern States are shown in the attached charts.

Changes in Utility Annualized Costs
(Billions of 1987 dollars)

	1990	1995	2000	2010
0.5 one-hour standard	+1.0	+1.1	+1.2	+1.2
S. 316 (with restricted trading)	--	+0.8	+2.6	+3.0

Changes in Utility Sulfur Dioxide Emissions
(In millions of tons from 1980)

	1990	1995	2000	2010
0.5 one-hour standard	-3.6	-3.2	-2.2	-0.2
S. 316 (with restricted trading)	+0.4	-3.9	-6.9	-5.4

(THE INFORMATION FOLLOWS)

0.5 NAAQS 95

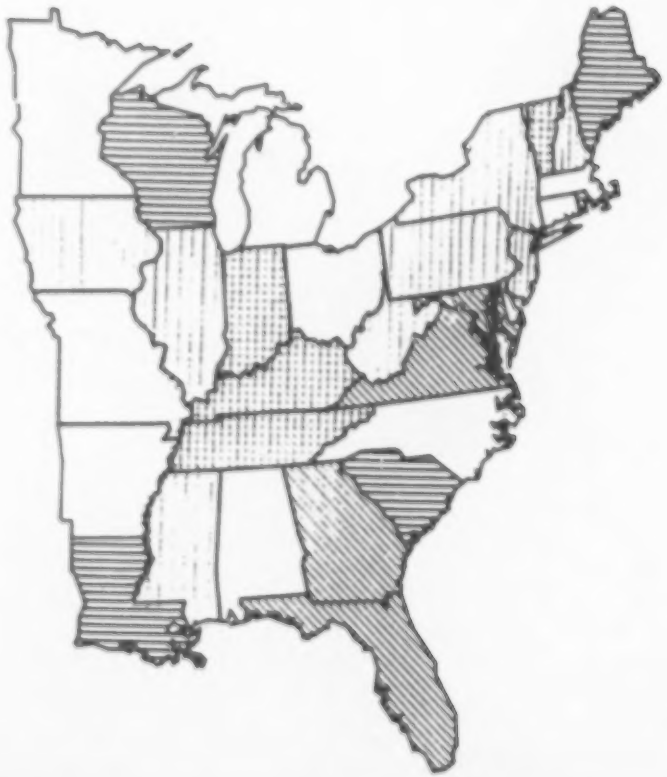
% SO2 EMISSION REDUCTION

Legend

- -80 to 0
- 0 to 10
- 10 to 20
- 20 to 30
- 30 to 40
- 40 to 50
- 50 to 60
- 60 to 70

S-316 95

% SO2 EMISSION REDUCTION



Legend

- -80 to 0
- 0 to 10
- 10 to 20
- 20 to 30
- 30 to 40
- 40 to 50
- 50 to 60
- 60 to 70

Question: What would be the most optimistic timetable for full implementation of a 1-hour SO_2 standard, including and excluding time for litigation? Please specify the time involved in each step in the process from notice of proposed rulemaking through final promulgation and State implementation of the new standard.

Answer: The EPA is concerned about the potential health effects of high short-term sulfur dioxide (SO_2) concentrations. For this reason, we are presently giving serious consideration to whether the existing standards adequately protect against such effects and thus whether there is a need for a one-hour SO_2 standard. However, since a decision has not yet been made on whether such a standard is warranted, the EPA has not developed any schedule for implementing it. If EPA were to promulgate a revised standard--a process which in the past has normally taken approximately one to two years from the date that a revision is proposed--the Clean Air Act (CAA) requires States to submit implementation plans (SIPs) within nine months. In order to adequately comply with the requirements of the Administrative Procedures Act, EPA's review and final approval of SIPs takes approximately 14 months. To be approvable under the CAA, those plans must demonstrate attainment of the standard within three years of their approval by EPA, although the States can request a two-year extension under section 110(e) of the CAA.

Implementation timetables are generally not affected by litigation of a standard--that is, courts do not usually stay the effectiveness of standards pending judicial review. Therefore, EPA would not expect to alter attainment schedules due to litigation unless the standards were remanded to the Agency by the courts. In such cases, the timetables would be restarted when new standards were promulgated.

Question: What role, if any, do you envision for new clean coal technologies in complying with a one hour SO_2 standard of .25 ppm? of .5 ppm? Please discuss sorbent injections, fluidized bed combustion retrofits, slagging combustors, conventional and advanced coal cleaning, and advanced scrubbers in responding to this question.

Answer: The Agency recently completed a Regulatory Impact Analysis (RIA) of alternative one-hour ambient sulfur dioxide (SO_2) standards. The analysis concludes that a 0.5 parts per million (ppm) standard would result in roughly a 25 percent decrease in emissions. A 0.25 ppm standard would result in a 57 percent decrease. The RIA includes an analysis of technology used by utilities to meet these requirements, but does so only in terms of conventional flue-gas desulfurization (FGD) technology and does not account for newer and more innovative technologies.

Although we have not made any assessment of the role of clean coal technology mixes for achieving compliance, some general observations are possible. First a 57 percent reduction

in SO_2 emissions to meet a 0.25 ppm standard corresponds to many acid rain abatement scenarios being examined. Were this standard adopted, we feel that a number of lower capital cost alternatives to conventional FGD would be used, especially where anticipated plant life is shorter, say 5-10 years. These include sorbent injection, both duct and in-furnace lime stone injected multi-burner (LIMB) concepts, and lower-cost spray dryers such as the Lurgi fluidized bed, and possibly some modified in-duct spray dryers. For the larger and longer-life plants where capital charges are less burdensome, conventional FGD and some other higher-capital systems such as fluidized bed combustion would likely be used.

For the 0.5 ppm standard, where only 25 percent SO_2 reduction is estimated, the prognosis is less certain. It may well make sense overall to achieve the 25 percent with full FGD on larger units and no control on smaller units. Otherwise a large number of candidate systems such as confined zone in-duct spray drying, dry lime injection, limestone spray drying and limestone furnace injection may surface in addition to those discussed above. Fuel switching and blending, if allowed, would likely be popular.

In either case we feel deep coal cleaning for SO_2 control would not be used widely because SO_2 removal is comparatively low (<25%) and the time and capital for constructing coal cleaning plants is rather high. Switching to available cleaned coal is likely, but the limited availability would diminish overall impacts. Advanced FGD, including slagging combustors, is still perceived as risky and probably would not be used without Federal support.

ACID RAIN

Question: In recent years, federal funding for tracer experiments to study long range transport patterns have been reduced significantly in favor of modelling efforts. Can you provide a justification for this trend and for the elimination of the MATEX experiment. These experiments, which involve the tagging of SO_2 emissions at their source, can provide vital information on which sources are most significant in terms of their impacts on acid-sensitive areas in the upper Midwest and Northeast. The Aministration's focus on expanded work on models, while deemphasizing empirical work on the actual transport patterns, seems misplaced.

Answer: EPA's research program continues to utilize both empirical and theoretical methods. The EPA, along with other members of the National Acid Precipitation Assessment Program (NAPAP), have conducted design and feasibility studies in planning the development and evaluation of these tools.

Design and feasibility studies for empirically based model development activities have been conducted. A November 1984 draft report, The Feasibility and Design of the Massive Aerometric Tracer Experiment (MATEX), concluded that MATEX had considerable risk of not achieving its objectives if it was implemented before attempting to experimentally resolve a number of scientific issues. The preliminary experiments to resolve those issues were also estimated to be very costly and also involved many uncertainties. The report also questioned whether several of the preliminary experiments would be able to provide the necessary information and resolution within the time frame proposed. A few of the larger uncertainites associated with these preliminary experiments included:

- the ability to represent a source region by few points of tracer release,
- the limited number and quantity of suitable tracers presently available,
- the ability to represent the large number of variations in emissions, meteorology, terrain, vegetation, source characteristics, and chemical transformations by uses of limited amounts of reactive tracers,
- limited distances proposed for tracer loss rate calibration experiments,
- proposed releases of ^{35}S (a radioactive isotope of sulfur) from restricted government facilities remote from population centers.

Because the feasibility studies revealed that an empirical model development approach is not practical, a numerical modeling approach is being relied upon to provide the assessment tools needed. A Regional Acid Deposition Model (RADM) is currently being developed. RADM contains modules to simulate transport, dispersion, chemical transformation, precipitation scavenging, dry deposition, etc. These modules are updated and revised as the uncertainties in the transport, chemistry, and deposition processes become better understood and are better able to be characterized based upon the results of ongoing empirical research efforts.

As a necessary quality assurance requirement prior to application of RADM for assessment of ecological and exposure risks, both operational and diagnostic evaluations of the RADM using field measurements are necessary to determine the utility and scientific soundness of the model, respectively. The operational evaluation is needed to determine if the model works (i.e., does the model provide estimates that agree with the deposition observed)? The diagnostic evaluation is needed to determine if the model works for the right reasons (i.e., do all components of the model simulate actual physical, and chemical processes correctly)?

Since design and feasibility studies for the empirical evaluation of RADM indicate that existing data are not sufficient to provide an evaluation of RADM which can be used to establish its scientific credibility, a program of field experiments is planned in FY 1988. This research will provide additional field data necessary to establish the scientific credibility of RADM and alternative source culpability assessment tools.

Question: In the debate about least cost strategies for compliance with federal acid rain controls, the costs and difficulties associated with waste disposal from retrofit scrubbers is often overlooked. Please provide this committee with an assessment of the costs and potential siting problems associated with a strategy such as that envisioned in either S. 300 or S. 321.

Answer: EPA has not yet conducted any detailed assessments of the two bills mentioned. However, we have developed considerable information on wastes from scrubbers more generally. The majority of large coal-fired utility flue gas desulfurization (FGD) systems ("scrubbers") in the U.S. produce large quantities of waste.* These wastes consist primarily of mixtures of calcium sulfite, calcium sulfate, and calcium carbonate. The wastes can also contain some fly ash. Some of the newest commercial systems produce wastes consisting almost entirely of calcium sulfate (gypsum). In a limited number of cases, this material is sold for wallboard manufacture. However, there are other advantages to a gypsum-producing FGD system, including: (1) the material can be easily dewatered to a solids weight percent of 80 or more, significantly reducing the volume of waste, while also improving its handling properties; and (2) in producing almost entirely calcium sulfate material, very little excess raw material (e.g., limestone) is used in the system (i.e., the system is highly efficient).

This should be kept in mind when comparing FGD systems with other waste-producing technologies. For example, a fluidized bed combustion (FBC) system will generate almost twice the weight of dry waste solids (not including fly ash) for the same percent SO_2 removal as a scrubber. However, since the density of moisture in wet gypsum is considerably less than the density of the solids, an 80% solids waste occupies about 20 percent more volume than a 100% solids (dry) waste. Still, the total volume of waste from a gypsum-producing scrubber would occupy only about 60 percent of the solids from an FBC system. In addition, the FBC system waste contains large amounts of unreacted lime, which, in contact with moisture, generates heat and a high pH (about 12).

---

*There are commercial FGD systems which produce concentrated SO_2, sulfuric acid, or sulfur. However, these systems are generally more expensive than waste-producing systems, and usually are operated where special local situations create a market for the by-products.

Further, it should be noted that all coal-fired plants produce large quantities of coal ash (fly ash and bottom ash) which must be disposed of in some manner. Many older plants which are space-limited require off-site disposal of coal ash; in a number of cases, this operation requires trucking the ash several miles from the plant. The addition of an FGD system to an existing coal-fired power plant adds to this disposal problem, but does not create a "new" problem. In addition, the quantity of FGD waste generated is typically about the same or less than the quantity of ash generated. There will, of course, be additional costs associated with disposal of the FGD waste. However, the major costs associated with retrofitting an FGD system to a space-limited, existing plant are involved in the difficulties in locating, constructing, and connecting the new FGD system in a "cramped" space. This evaluation is based on recent site-specific studies at several plants in the midwest.

The quantity of waste generated by FGD system is primarily dependent on the percentage of sulfur in the coal, the percentage of flue gas SO_2 removal achieved, and, as mentioned above, the manner in which the system is designed and operated (e.g., how much excess raw material is in the waste and whether or not gypsum is produced). For example, for each ton of SO_2 removed, a highly efficient limestone FGD system, producing 80 percent solids gypsum (assuming an ideal case of no excess limestone) would generate

$$1 \text{ ton } SO_2 \longrightarrow \frac{172}{64} \quad \frac{1}{0.8} \text{ tons } [CaSO_4.2H_2O + 20\% \text{ moisture}]$$

molecular wt = 64 molecular wt = 172

or 3.36 tons $[CaSO_4.2H_2O$ + moisture]

Sometime ago EPA funded a study, Solid Waste Implications of Acid Rain Controls. This study used a slightly more conservative estimate of 4.01 lbs of sludge/lb of SO_2 removed with forced oxidation. This study calculated sludge disposal requirements for several control options of interest at that time. In addition it discusses siting constraints and concerns about solid waste on a State-by-State basis. Though some of the information in this report may be slightly out of date, we believe that it provides a great deal of useful information which pertains to the Committee's request.

(THE INFORMATION FOLLOWS)

SOLID WASTE IMPLICATIONS OF ACID RAIN CONTROLS

FINAL REPORT
WORK ASSIGNMENT NOS. 99 AND 100
CONTRACT NO. 68-01-6558
JUNE 13, 1985

Introduction

Acid rain legislation being considered by Congress (S.283 and H.R. 1030 among others) may require reduction of annual SO_2 emissions of 4 to 12 million tons. Although fuel switching and coal washing can be used to reduce SO_2 emissions, flue gas desulfurization (FGD) or scrubbing will also be used as a control technology. In some cases scrubbing will be utilized because it is a more cost-effective means of achieving required emissions limits while in other cases it may be required by legislation. One consequence of the use of scrubbing will be the generation of large volumes of FGD scrubber sludge. Since existing power plants were not originally sited taking into account the need for scrubber sludge disposal, some facilities may encounter serious constraints to the siting of disposal facilities.

This report examines solid waste generation under alternative acid rain control scenarios, reviews state regulations affecting electric utility solid waste disposal, and presents the results of an analysis of the constraints to siting disposal facilities specifically at 50 coal fired steam electric plants identified in Phase I of the Waxman/Sikorski bill, 98th Congress HR 3400. The following are the major findings of this analysis:

- Scrubber sludge disposal will be a problem primarily for existing plants in the northern midwest and the eastern seaboard of the United States.
  - By 1995 scrubber sludge generation will increase by 2 to 25.5 million tons per year under alternative acid rain control scenarios.
  - Beyond 1995, the total volume of sludge generation will decrease from the base case under stringent acid rain control scenarios because new plants will be required to burn low sulfur coal and install scrubbers.

- On a plant-specific basis, sludge generation ranges from 200,000 tons per year to over 1.4 million tons per year.
  - Haulage requirements range from approximately 25 to 170 truckloads per day per plant excluding return trips.
  - Acreage requirements for landfill disposal range from 105 acres to 750 acres (1.2 square miles) per plant.

- The problem of FGD sludge disposal at plants is primarily one of logistics--finding a site suitable under regulatory and public acceptance constraints.

- At present, the major regulatory responsibilities and authority for management of FGD sludge disposal rest with individual states. Federal regulations exclude FGD sludge from listing as a hazardous waste. Among the 13 states examined for this project:
  - Only two states--Tennessee and Illinois--classify FGD sludge as a hazardous waste.
  - State regulations which pertain to floodplain locations, groundwater monitoring and protection, design and operational standards, closure requirements, and financial responsibility vary considerably from state to state.
  - The key permit approval or denial decisions are made by states based on site-specific interpretation of state standards.

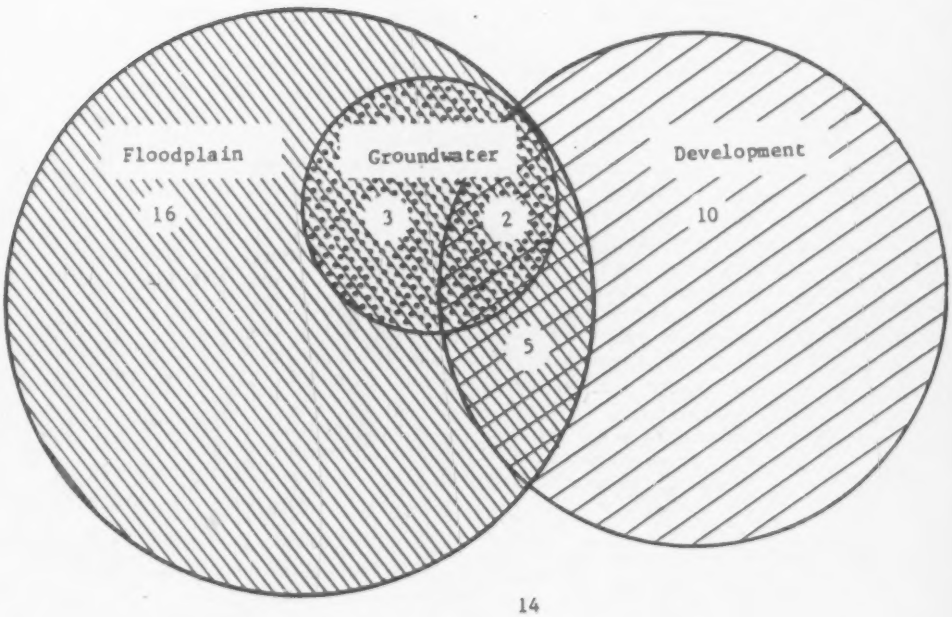
- The major site-specific constraints are floodplain location, threats to groundwater quality, and development in the surrounding area. As shown in Figure 1, these constraints were found in 36 of the 50 plants examined.
  - The most critical constraint concerns conflicts with surrounding development which is possible at 17 of the 50 plants examined and may be severe at seven plants. If land is not available nearby, sludge must be hauled to a more distant disposal facility, increasing disposal costs. In addition, utility planners may face public opposition to the transport of sludge through populated areas due to the increased traffic and nuisance of heavy trucking.
  - Of the 50 sites examined, 26 may encounter problems due to floodplain locations, 11 of which may be severe. Where floodplain sites are not acceptable, transport of sludge out of the floodplain or construction of floodwater barriers may be required.
  - Only five of the plants are in areas where facility siting is likely to be constrained by groundwater proximity. Each of these plants may also encounter constraints due to flooding, and two of them are also constrained by surrounding development.
  - As shown in Figure 1, two plants are constrained by development, floodplains and groundwater (but only one of these will encounter severe constraints), five are constrained by both development and floodplains, and three are constrained by groundwater and floodplains.

- The cost of sludge disposal represents less than 15 percent of the capital cost for SO_2 emissions control. For plants that are constrained in siting as described above, sludge disposal costs will be higher than EPA currently anticipates.
  - The economic analyses being used by EPA assumes a one mile distance to the disposal site. This analysis indicates that about 30 of the 50 plants examined will be able to site an adequately sized landfill within one to two miles of the generating station. Of the remaining 20 plants, 15 may have to site the landfill at least four to five miles away. Four or five will need to site more than 10 miles away.
  - At a model 500 MW plant, the <u>incremental</u> capital investment is $2.2 million (about a 15 percent increase over the one mile haul base cost). However, total capital costs for SO_2 emissions control increase less than 2.1 percent because disposal costs represent less than 15 percent of the total investment for SO_2 control.

The remainder of this report provides a more detailed discussion of the analysis on which the above findings are based. Part I presents estimates of FGD sludge generation and acreage requirements for landfill disposal under

Figure 1.

SUMMARY OF SITING CONSTRAINTS FOR LANDFILLS AT THE TOP 50 PLANTS[a]



a. As identified in Phase I of the Waxman/ Sikorski bill, 98th Congress HR3400

Source: Analysis by Abt Associates, Appendix A.

different acid rain regulatory scenarios. Part II reviews the state regulatory framework governing disposal of FGD sludge and identifies regulations that may restrict the siting of solid waste disposal facilities. Part III identifies site-specific constraints to the siting process for the 50 power plants identified in Phase I of the Waxman/Sikorski bill, 98th Congress H.R. 3400, in terms of regulatory, physical, and public opinion constraints. Part IV describes the effect of these constraints on the cost of scrubber-based acid rain controls.

I. SLUDGE GENERATION

Estimates of FGD sludge generation developed by EPA suggest that the disposal of large quantities of sludge will be an issue over the next 25 years. In a previous study for EPA's Office of Policy Analysis, Abt Associates reviewed these projections of scrubber sludge generation under four different scenarios: a baseline case, assuming that no acid rain regulations will be promulgated; a 4-million ton mandated reduction in a SO_2 emissions; an 8-million ton mandated reduction in SO_2 emissions; and a 12-million ton mandated reduction in SO_2 emissions. The major findings of this study were that:

- Scrubber sludge disposal will be a problem primarily for existing plants in the northern midwest and the eastern seaboard of the United States if these plants are required to retrofit scrubbers. Plants in the southwest and west will experience only minor increases in scrubber sludge generation.
- By 1995, currently existing plants will generate about 30.2 million tons per year of scrubber sludge under the baseline case of no acid rain regulations.[1] These plants will generate 32.2 millions tons per year of sludge with a 4-million ton mandated reduction in SO_2 emissions, 39.6 million tons with an 8-million ton mandated reduction, and 57.5 million tons if with a 12-million for mandated reduction. Assuming landfill disposal, these sludge volumes will require about 15,600, 16,650, 20,500 and 29,750 acres for disposal, respectively.
- Beyond 1995, as shown in Figure 2, the total volume of scrubber sludge generation by utilities will decrease under all but the 4-million ton reduction acid rain regulatory scenario relative to the baseline case. This decrease is accounted for by the fact that in order to meet the more stringent acid rain requirements new plants coming on-line after 1995 will be required to scrub and burn low-sulfur coals. Because they will burn low-sulfur coals, these plants will generate less scrubber sludge than they would if there were no acid rain regulations and they continued to burn high-sulfur coal.

This analysis assumed wet scrubbing and forced oxidation of scrubber sludge. To the extent that actual plants do not use forced oxidation, sludge quantities will be 1.5 times greater.

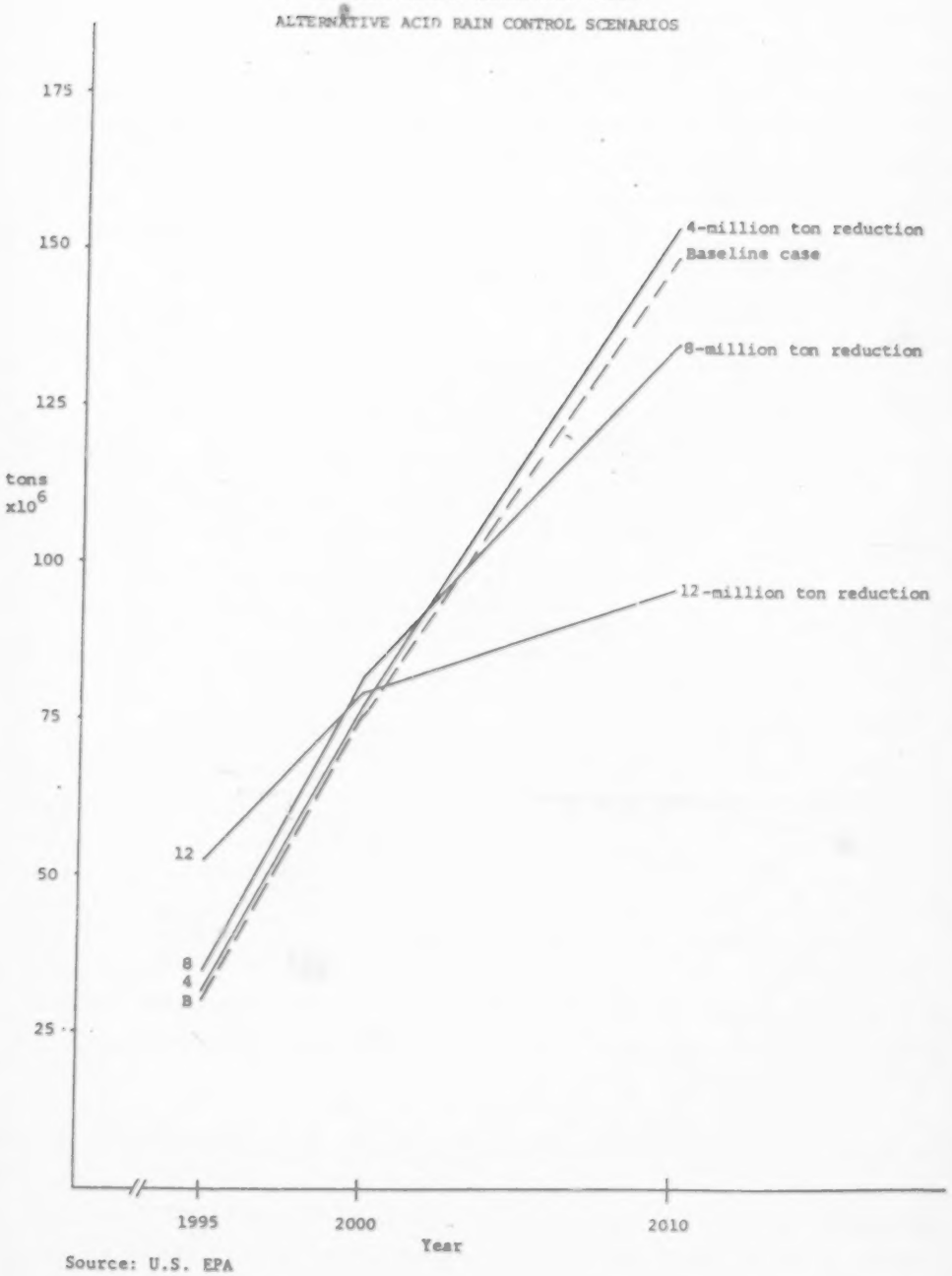
The magnitude of the FGD sludge disposal problem can also be illustrated at the plant level. Table 1 presents sludge generation and acreage requirements for landfill disposal at "model plants" from 500 MW to 2500 MW burning sulfur ranging in sulfur content from 1.75 percent to 4.5 percent. A 500 MW plant burning coal with a 3.5 percent sulfur content will generate 377,000 tons of scrubber sludge per year and require 164 acres of landfill capacity over a 30

---

[1]Estimate from EPA's 1982 Acid Rain base case; draft 1985 Acid Rain base case may show different projections.

Figure 2.

SCRUBBER SLUDGE GENERATION UNDER
ALTERNATIVE ACID RAIN CONTROL SCENARIOS



Source: U.S. EPA

year period. A 1500 MW plant burning 3.5 percent coal will generate 951,000 tons of sludge per year and require 492 acres of landfill capacity over a 30 year period.[2]

To further analyze the plant-specific impacts of acid rain regulations. Abt Associates considered the generation of FGD sludge at the 50 plants specified under the Waxman/Sikorski Bill in the 98th Congress. The impacts of scrubber sludge generation at these plants are based on two parameters: the number of truckloads of sludge that must be transported to the landfill (haulage requirements), and the landfill acreage required for landfill disposal.

As shown in Figure 3, over half of the plants would require transport of more than 50 truckloads of sludge to a landfill each day, and 8 of these would require the removal of more than 100 truckloads per day. The full impact of sludge transport, however, is more accurately expressed in terms of truck traffic which is double the figure for truckloads transported per day because of return trips. The consequences of trucking large quantities of sludge include high transportation costs if the landfill cannot be located near the plant (see part four for more detailed cost impacts), and substantial public opposition if the sludge must be transported through residential or commercial areas. These subjects are discussed in a plant-specific context in Part III.

---

[2]Calculations from "Solid Waste Disposal Implications of Alternative Acid Rain Regulatory Scenarios," Abt Associates, 1984.

Table 1

Scrubber Sludge Generation and Acreage Required for Landfill Disposal for Model Power Plants Using Coal with Varying Sulfur Contents*

Coal Sulfur Content (Percent)	Plant Capacity (MW) 500		750		1000		1500		2500	
	Sludge Generated (tons/yr.x10^3)	Land Required (acres)	Sludge Generated (tons/yr.x10^3)	Land Required (acres)	Sludge Generated (tons/yr.x10^3)	Land Required (acres)	Sludge Generated (tons/yr.x10^3)	Land Required (acres)	Sludge Generated (tons/yr.x10^3)	Land Required (acres)
1.75	158	82	238	123	317	164	475	246	792	410
2.5	227	117	340	176	453	234	679	352	1,132	586
3.5	317	164	475	246	634	328	951	492	1,584	820
4.5	408	211	611	316	815	422	1,222	632	2,037	1,054

*Quantities of sludge were obtained from calculations assuming the following:

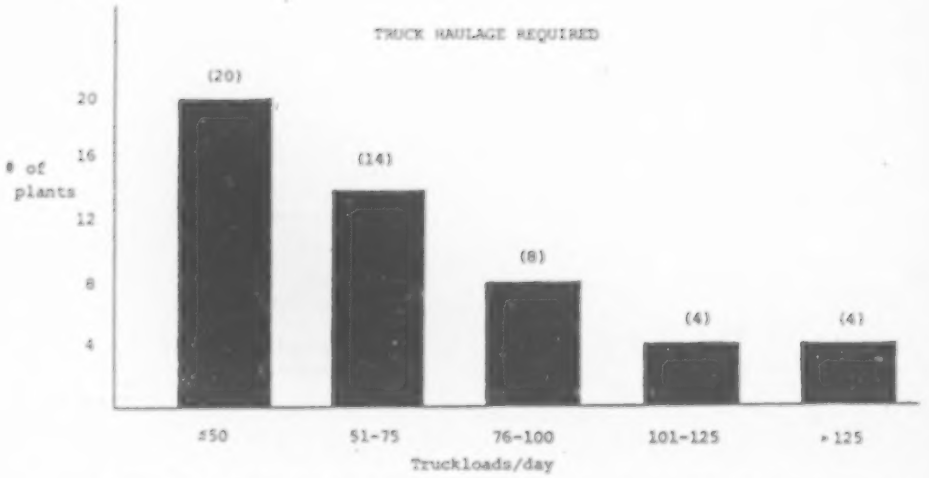
- 60% capacity factor
- 10,500 BTU/kWh heat rate
- 11,000 BTU/lb. heating value
- 4.01 lbs. sludge/lb. SO_2 removed-with forced oxidation

Table 2

Classification of Scrubber Sludge in State Solid Waste Regulations

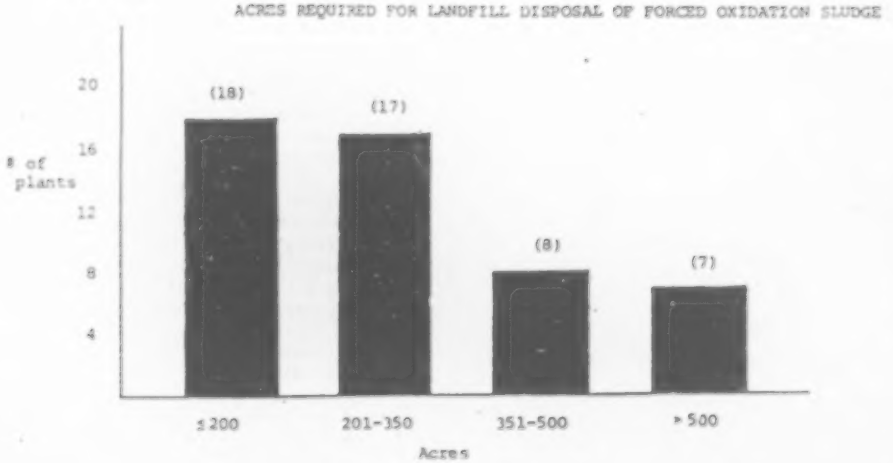
State	Classification of Sludge	Sludge Management Requirements
Alabama	Solid waste, sludge	no specific requirements given
Florida	Special waste, sludge	no specific requirements given
Georgia	Solid waste	no specific requirements given
Illinois	Special waste	haulage permits and manifests required
Indiana	Solid waste, sludge	no specific requirements given
Kentucky	Special waste	high volume, low hazard, to be disposed of in a residual landfill
Mississippi	Solid waste, sludge	no specific requirements given
Missouri	Solid waste	air pollution control residues are exempted from sludge disposal restrictions
Ohio	Solid waste	semisolid wastes excluded from a solid waste landfill unless plans for disposal approved
Pennsylvania	Residual waste	separate standards for fly ash, bottom ash, and slag disposal areas
Tennessee	Hazardous waste, sludge	exempt from all but testing, determination, and notification requirements. Special approval needed for sludge disposal
West Virginia	Solid waste, sludge	no specific requirements given
Wisconsin	Solid waste, sludge	no specific requirements given

Figure 3.



Ranges from 23 to 166 truckloads/day. Note: this does not include return trips.

Figure 4.



Ranges from 105 to 751 acres. Note: 640 acres = one square mile.

Source: Appendix B

Assuming a 90% reduction in SO_2 emissions

The ability of a plant to minimize the impacts of FGD sludge disposal by locating the landfill nearby depends on the disposal acreage requirements. As shown in Figure 4, acreage needs range from 105 to 751 acres at the top 50 plants, with 32 of the plants requiring landfills larger than 200 acres, and 7 of these requiring landfills larger than 500 acres. To the extent that plants are located in floodplains or in densely settled areas it may be difficult to

site landfills in close proximity to the plants. The magnitude of the constraints posed by these conditions is discussed in Part III of this report.

II. REGULATORY FRAMEWORK

At present FGD scrubber sludge is specifically excluded from listing as a hazardous waste under the Resource Conservation and Recovery Act (RCRA). Scrubber sludge must, however, be disposed of in a manner that meets RCRA Subtitle D guidelines for solid waste facilities. In addition to these requirements federal regulations germain to FGD sludge disposal include regulation of disposal into navigable waters, point and nonpoint source pollution control (CWA and NPDES), and drinking water supply protection (SDWA). Although landfill operations must meet minimum requirements and standards established by various federal regulations, the major regulatory responsibility rests with the states. Either through regulations or through provisional rules the states may require additional measures to protect their citizens and natural resources from adverse impacts arising from the construction, operation, and retirement of a landfill.

State regulatory requirements fall into several categories: application requirements, design and operational standards, and post-closure requirements. Landfill applications require information and compliance plans in order to protect public health and the environment, and to reduce states' financial liability. Design and operational standards provide for proper siting, proper design and disposal practices, and maintenance of environmental protection procedures. Post-closure requirements are intended to assure that sites are left in stable condition and that future environmental hazards are minimized.

To assess the extent to which individual state requirements may differ and the extent to which these requirements may result in constraints to facility siting Abt Associates reviewed existing legislation, administrative regulations, and application forms for landfill construction and operation for each of the 13 states containing one or more of the top 50 plants. In general, most state regulatory requirements can be met through investments in facility design and operation. While promulgated regulations contain restrictions and requirements for the sludge disposal facility siting process, provisional interpretation of the regulations by the states' environmental protection agencies appears to be the rule rather than the exception. Both regulatory and non-regulatory restrictions are discussed below in terms of:

- Waste classification of sludge;
- Restrictions on floodplain locations;
- Groundwater and sole source supply area protection;
- Financial responsibility; and
- Other requirements.

Waste Classification. Since the passage of RCRA in 1976, regulatory agencies have been occupied with writing and refining hazardous waste regulations. Only recently have state and federal agencies begun to turn their attention to revision of the existing solid waste regulations; in some cases, individual states have taken the lead. For example, Pennsylvania's new lining requirements include a 1:1 ratio of soil to waste depth above high groundwater levels. Many states now require the site owner to demonstrate financial responsibility to cover the costs of proper closure. Tennessee has proposed extended post-closure maintenance for ten years at which time the site will be reassessed to determine whether or not further care is needed. In the coming years new regulations that specifically address scrubber sludge handling and disposal are likely to take effect. Future state actions will also depend on the federal lead in determining the level of hazard associated with scrubber sludge.

At present, as shown in Table 2, FGD sludge is defined as a solid waste in most states. In these states scrubber sludge disposal falls under state regulations designed to meet RCRA Subtitle D guidelines. Illinois and Tennessee classify FGD sludge as a special waste and a hazardous waste respectively. In Illinois special haulage permits and manifests are required. In Tennessee, toxicity and hazard testing and notification of waste production is required. Kentucky, Ohio, and Pennsylvania also require special approval for disposal from the state solid waste regulatory agency.

Floodplain and Surface Water Protection. Floodplain location restrictions can significantly affect the ability of utilities to site solid waste disposal facilities. Because steam-electric utility generating plants must be located close to a source of water for steam generation and cooling, many plants are located in 100-year floodplains and the only readily available land for disposal facilities is located in floodplains.

The most restrictive regulatory constraints concern siting a new landfill within the 100-year floodplain. As shown in Table 3, Pennsylvania, Tennessee, and Wisconsin prohibit siting of new facilities within a floodplain. Indiana and Ohio also prohibit floodplain locations, but may grant waivers provided it

Table 3

Floodplain and Surface Water Protection

State	Floodplain - Restrictions	Runoff Control	Other Restrictions
Alabama	A facility in a floodplain shall not restrict flow of the base flood, reduce the temporary storage capacity of the floodplain, or result in a washout of solid waste	Settling basins and surface water diversions required	N.A.
Florida	Cannot be in an area frequently flooded unless drainage provisions are approved	Collection, control, and treatment of runoff necessary	Cannot be within 200 feet of any body of water except canals
Georgia	NIR*, but approval unlikely on a case by case basis	Site shall be graded and drained to minimize runoff and erosion	Surface water monitoring generally required
Illinois	Prohibited unless it can be shown that there will be no damage to the landfill site or interference with flood flows.	Drainage facilities, structures, and other devices to comply with water quality standards	Water pollution in Illinois prohibited. Proof of no hazard to State waters required
Indiana	Within the 100 year floodway, approval from the Stream Pollution Control and Natural Resources Boards required	Surface waters shall be diverted	N.A.
Kentucky	Cannot restrict the flow of the base flood or result in washout of waste	Runoff control system must consider waste characteristics and proximity to surface water	Non-point source pollution of state waters prohibited
Mississippi	Landfill shall be located or designed so it cannot be inundated by the 100 year flood	Runoff from active portion of landfill must be collected and treated. Final cover graded and sanded	Cannot be within 1000 feet upgradient or 250 feet downgradient of a recreational class water body
Missouri	If in a floodplain design must have impervious dikes to prevent floodwater contact with wastes. Restriction of flow must be considered	Provisions for runoff control should be designed for 20 year frequency rainfall	Background study and assessment of impacts on surface wastes required
Ohio	Prohibited except by waiver of Director of Ohio EPA which insures no hazard to health or waters	Runoff shall be diverted from completed portions and grading required	Cannot be within 200 feet of a stream or lake
Pennsylvania	The site shall not have a flooding hazard of greater than once in 100 years	Diversion ditches required for runoff control	Special approval required if within one mile of public groundwater supply or three miles of surface water supply
Tennessee	No site shall be subject to flooding	Runoff control through drainage and grading requirements	N.A.
West Virginia	Site shall not restrict flow, reduce temporary water storage or result in washout of wastes so as to endanger human life or natural resources	Determined on a case by case basis. Drainage and grading usually required	Site shall not contribute to pollution of state water
Wisconsin	Prohibited within a flood plain	Runoff control measures and monitoring may be required	Prohibited within 300 feet of a navigable stream or river

*NIR - Not addressed in state regulations

is proven that there will be no hazard to health or waters. While Georgia regulations do not specifically address floodplain siting, officials at the Department of Natural Resources stated that approval of a site within a floodplain is unlikely.

The wording of promulgated floodplain restrictions for the remaining states is somewhat less restrictive. Facility designs and specifications must show that the proposed landfill will not interfere with the flow of the base flood, will not reduce the storage capacity of the floodplain, will prevent floodwater contact with wastes, and will not result in a washout of wastes. Otherwise, floodplain sites are prohibited.

Surface water protection restrictions consist primarily of requirements for runoff controls and for siting at specified distances from surface waters. Each of the 13 states require runoff controls. Generally, runoff controls consist of grading, drainage and collection facilities to prevent contaminated rainwater from entering surface waters and may impose additional costs. Five states, Florida, Mississippi, Ohio, Pennsylvania and Wisconsin restrict the construction of a landfill within specified distances of surface waters. In general, regulations in these states prohibit the siting of landfills within 200 to 300 feet of surface waters. However, in Mississippi a landfill cannot be located within 1000 feet upgradient of any recreational class water body.

Protection of Groundwater and Sole Source Aquifer Areas. Regulations concerning siting near drinking water supply wells and surface waters in certain states, and within sole source aquifer areas may also limit disposal facility siting within vulnerable hydrogeologic areas. In general these restrictions are less critical than those pertaining to locations in floodplains, but they may impose additional costs in specific cases.

As of March 1, 1985, the Office of Drinking Water (ODW) had designated twenty-one areas throughout the U.S. as having a sole source of groundwater supply and requiring special protection. None of these areas is near to any of the top 50 SO_2 emitting utilities examined here. However, if acid rain regulations are enacted, scrubber requirements may affect many other generating stations, possibly some within or near sole source boundaries. In addition, new sole source designations are continually being determined by ODW; six areas were added in early 1984 and four in 1985.

Federal designation as a sole source aquifer area limits development and requires increased control over potential threats to groundwater quality. The effect of sole source designation on sludge disposal facility siting may be

considerable because of the cost of transportation. Depending upon distance, hauling sludge to an extreme downgradient border or out of the designated area completely may be less cost effective than an extensive leachate control system and a secure landfill liner. The capital investment for on-site groundwater protection for sludge disposal at a landfill serving a 500 MW plant (3.5% sulfur coal, 90% removal and forced oxidation of sludge) may range from $2 million to $4.5 million. Annual O&M costs will generally be lower than $100,000 year. These costs may be compared to the incremental costs of a ten mile haul: a $4.9 million capital investment and annual O&M costs of approximately $350,000. Longer haulage distances will increase both capital and O&M costs further. It should be noted that the costs and impacts of sole source aquifer designation can only be estimated on a case by case basis because restrictions and requirements for disposal are unique to each aquifer area.

Under state regulations, groundwater monitoring and leachate control are generally required to meet either explicit monitoring standards or more general prohibitions of off-site pollution. Serious leachate problems or lack of mitigation measures may be cause to close a facility. In addition, soil barriers or synthetic liners may be required based on leachate production and hydrogeologic conditions at the site. These design constraints present no impediment to siting so long as appropriate measures are taken.

Virtually all the states examined as part of this study require some form of groundwater monitoring and various states require additional groundwater protection measures. For example, as shown in Table 4, Georgia, Ohio and Wisconsin specifically prohibit siting of a landfill within prescribed distances from drinking water supply wells.

Post-closure requirements such as leachate control, site maintenance, and continuing financial responsibility vary greatly between states. While Wisconsin requires open ended commitments of the owner/operator until the site is stabilized, Georgia requires site maintenance for only one year, and Missouri has provisions requiring maintenance and monitoring as needed.

Other Requirements. In addition to the site-specific requirements described above, individual states frequently impose additional requirements that may, in some cases, either prohibit the use of particular sites or make landfill construction and operation at certain locations more costly. As described below, these requirements pertain to application conditions, public hearings, licensing, and post-closure requirements. These requirements are discussed in Tables 5, 6 and 7.

As shown in Table 5, a review of environmental impacts is generally performed

Table 4

Groundwater Protection

State	Monitoring	Leachate Control	Other Restrictions
Alabama	Groundwater evaluation required. Minimum of one upgradement and two downgradient wells	May be specified if necessary to protect the groundwater	Minimum of five feet above high groundwater level. Liner may be required where natural conditions are insufficient to prevent contamination
Florida	Hydrological survey required every six months. Minimum: one upgradient, two downgradient wells within boundary of site	Any leachate shall be collected and treated as necessary	Soil testing and approval of conditions required
Georgia	Generally required	The site shall be operated to prevent water pollution	Five to 25 feet above high groundwater. Not within two miles of a public water supply, one-half mile if private
Illinois	Unspecified number and location of monitoring wells required	Landfill must provide adequate measures to monitor and control leachate	N.A.
Indiana	Where deemed necessary by the Natural Resources Board	Cover management and other leachate control measures required	Soil barriers between waste and groundwater required. In no case shall solid waste be deposited in an aquifer
Kentucky	Need groundwater quality assurance plan or monitoring system	The design of the leachate control system must consider the waste characteristics and management options	Contamination of a drinking water source beyond waste boundary prohibited
Mississippi	Background monitoring and no less than three downgradient wells, if required by state	Point source leachate flowing to surface waters must have NPDES permit	Minimum of 5 feet between waste and high groundwater level. Site shall not endanger any off-site aquifer at any future time
Missouri	Background and observation wells required	Leachate collection and treatment systems are to be used where necessary for as long a period as necessary	Groundwater shall not be allowed to come in contact with wastes
Ohio	Background and observation wells to be installed as deemed necessary and sampled semiannually	If there is significant leachate production, it shall be collected and treated before discharge	A minimum of 5 feet between waste and high groundwater level. Not within 1000 feet of an existing well
Pennsylvania	A minimum of one well (3 total) in each dominant direction of flow and background wells required	Leachate flow record and control required if without liner	Liners must have a minimum 1:1 ratio (or 6 feet) of soil (between high ground water level) and waste depth
Tennessee	De facto requirement - should any off-site contamination occur then mitigation measures shall begin immediately	De facto requirement - to prevent contamination of groundwater	N.A.
West Virginia	Generally required. Determined on a case by case basis.	Determined on a case by case basis	N.A.
Wisconsin	Three observation wells for the first 5 acres and one more for each additional 5 acres	Leachate monitoring, control, and treatment may be required	Prohibited within 1,200 feet of any water supply well

as part of the design and approval process, although only half of the states involved require a written environmental impact statement. In all cases, proposed sites may be rejected due to anticipated adverse impacts. Mississippi and Florida explicitly require greater protection of endangered species and critical habitats than required by federal wildlife regulations.

Further, as also shown in Table 5, all states require design and operation plans; but only one half (Alabama, Kentucky, Missouri, Ohio, Pennsylvania, Tennessee, and Wisconsin) require a detailed closure plan. Only Alabama does not require consideration of closure costs. A performance bond or other collatoral to cover the the cost of closure must be posted in six of the states (Florida, Illinois, Mississippi, Pennsylvania, Tennessee, and Wisconsin). Two additional states (Indiana and Ohio) are working to adopt such measures and it is likely that others will follow suit.

Post-closure site maintenance and land use restrictions vary considerably from state to state (Table 6). Five states (Alabama, Missouri, Pennsylvania, West Virginia, and Wisconsin) require open ended site maintenance, as long as deemed necessary. Indiana requires that the site be maintained in perpetuity. The remaining states require maintenance for a minimum fixed period of one year (Georgia, Mississippi, and Tennessee), two years (Florida and Kentucky), or three years (Illinois and Ohio). Tennessee has proposed that after ten years the site be reassessed to determine if further care is necessary.

As stated previously, most of these regulatory requirements can be met with capital or operating outlays for design, construction, and operation. In comparison to scrubber costs, the financial burden imposed by disposal requirements is small. For example, the cost of a synthetic landfill liner may range from $7000 - $22,000/acre; groundwater monitoring wells cost $2000 installed and annual O&M is approximately $5,000 to run a monitoring system; performance bonds, if required, must typically cover the cost of closure and/or post-closure care which are calculated as a fixed rate, e.g. $1,000/acre (Tennessee), or a site-specific engineering cost estimate. Assuming that the most extensive pollution control measures are employed, post-closure capital costs account for less than 5 percent of total SO_2 emissions control costs.[3] Because state environmental protection agencies maintain discretionary and provisional rule, other regulatory restrictions may be important in the site-specific approval process. However, a few design and

[3]Liner costs from EPRI, FGD Sludge Disposal Manual, Second Edition, 1980. Monitoring costs from RCRA Risk Cost Analysis Model, Phase 3 Report, Appendices, EPA, 1984. Performance bond costs from state regulations.

Table 5

Application Requirements

State	Environmental Impact	Design and Operation Plan	Closure Plan	Financial Responsibility
Alabama	As determined necessary by the State Board of Health	Detailed background evaluations (geology, hydrology, etc.) and plans for compliance with operational standards	Detail design for closure shall include closure procedures, maintenance and land deed record	NIR*
Florida	Project reviewed by technical advisory committee	Operational plans and engineering plans to meet rules	No plan required. Must follow prescribed closing procedure	Bond to cover cost of proper closure
Georgia	EIS required	Requirements but no specific D&O plans	General Standards of Operation but no plan. 30 days required	Proposed method of financing required.
Illinois	Evidence that landfill will not cause water or air pollution. Appraisal of environmental effects	D&O plans needed for initial application and operating permit	Closure requirements but no plan required	Performance bond or other security to cover cost of closure and post-closure care
Indiana	Not required	Narrative describing operation and design plans required	Proposed use of land and final surface contours must be provided	NIR
Kentucky	Potential for adverse effects on health and environment must be evaluated	A complete description of operations and engineer-certified design plans required	A closure plan required	Financial responsibility funds to cover cost of closure required and reviewed every 5 years
Mississippi	Must be clearly demonstrated that there will be no adverse impact on the ecosystem	Approval of site plans, and specifications for site design and operation	To be submitted 30 days prior to closure	Performance bond satisfactory to municipal governing body must be posted
Missouri	Potential interrelationships between landfill and groundwater, geology and hydrology of site	Operational plan of project and detailed plans for design required	Closure plan including maintenance, monitoring, and leachate control provisions required	Must have considered cost of closure in plans
Ohio	Not required	Detail plans call for specifications of operation and design plans	Detailed plans for maintenance and future use	NIR but authority to require performance bonding in the enabling legislation
Pennsylvania	Anticipated environmental effects of the project	Operational specifications and design plans needed	Required as part of operational specifications	Bond to cover cost of final closure ($10,000 minimum) required for duration of project and up to 10 years after
Tennessee	Anticipated environmental effects and economic evaluation needed for feasibility study	Approval of plans for design, construction, and operation required	Annual filing of remaining life and approval of method of closure required	NIR but authority to require performance bond for at least $1,000/acre in the enabling legislation
West Virginia	NIR	All approved sites shall be constructed and operated in accordance with rules	Abandonment unlawful, must comply with regulations - no plan required	Fully liable if permitted. No bonding required
Wisconsin	The direct, indirect, and cumulative effects of the proposed site must be evaluated	Proposed operating procedures, pollution control methods, and design plan required	Proposed method of long-term care and final use of site required	Demonstration of financial responsibility and/or performance bond required

*NIR - Not addressed in state regulations

Table 6

Post-Closure Requirements

State	Monitoring	Maintenance	Other Requirements
Alabama	Monitoring and pollution control maintenance as needed	As needed; no time period given	Notice of location, wastes disposed, owners, etc., written in land records
Florida	Until the site is stabilized*	For two years	Public record in the county property recording office
Georgia	Until the site is stabilized	Not less than one year	All waste must be adequately covered
Illinois	For three years	For three years	All waste must be adequately covered
Indiana	Monitoring for two to five years	In perpetuity owner or operator required to maintain site	Plan for completed site required
Kentucky	As approved by the Natural Resources and Environmental Protection Cabinet	For two years	Must notify owners in perpetuity of site use and nature of wastes
Mississippi	Sites shall be maintained to provide surface and groundwater protection	One year of care required. Longer if deemed necessary	Closed so that land is amenable to some other use. No buildings permitted for five years
Missouri	May be required, no time period given	As needed, no time period given	Leachate control and treatment for as long as necessary
Ohio	For three years or until potential pollution is effectively controlled or eliminated	For three years	Leachate control needed for three years. Notice of closure to be published in county if off-site
Pennsylvania	As long as deemed necessary	Ash and slag disposal sites maintained as long as necessary; up to ten years	Use of site for landfill must be registered in deed book
Tennessee	Proposed for ten year period and reassessed at that time	For one year. Proposed for ten year period and reassessed at that time	Site must be recorded as a landfill with the registrar of deeds
West Virginia	As deemed necessary on a case by case basis	As deemed necessary on a case by case basis	Shall not contribute to or cause discharge of pollutants
Wisconsin	All monitoring to continue until site is stabilized	Maintenance of site and revegetation required until stabilized	Prior to licensing site must be recorded with the registrar of deeds

*Stabilized means that biological and chemical decomposition of the wastes has ceased or diminished to a level so that such decomposition no longer poses a pollution, health, or safety hazard.

siting standards, such as floodplain restrictions, may prove critical to siting and costs of sludge disposal facilities.

State regulatory requirements concerning public hearings and licensing, summarized in Table 7, may also affect siting decisions. Every state examined has provisions for public hearings if there is sufficient interest in or objection to the project. Given the substantial construction and transportation impacts associated with electric utility solid waste disposal, these hearings and licensing procedures may become the focus for substantial public opposition.

III. SITE-SPECIFIC ISSUES

This section examines site-specific problems that may arise in siting scrubber sludge disposal facilities. To address site-specific issues, Abt Associates first determined the quantity of sludge that each of the 50 plants identified in the Waxman-Sikorski bill would generate and the amount of land it would require. Abt Associates then grouped these plants into three categories:

- Plants that are unlikely to encounter serious impediments to siting a disposal facility within two miles of the plant site;
- Plants that might encounter problems due to floodplains restrictions, hydrogeology or topography; and
- Plants that might encounter problems due to their location in densely populated areas

The initial grouping of plants was based on an analysis from U.S. Geological Survey (USGS) and hydrogeological maps. Subsequently, this grouping was verified by telephone contacts with a sample of plants in each group. The remainder of the section discusses the results of both the initial grouping and the subsequent telephone verification.

Floodplain prohibitions, land availability, and public acceptance of transport and disposal plans are the three most likely practical constraints to the siting process. Other design considerations, e.g., mode of transport and price of land have differing cost implications and thus play a role in a utility's evaluation of disposal options, but do not, in themselves, hinder the development of a landfill disposal plan.

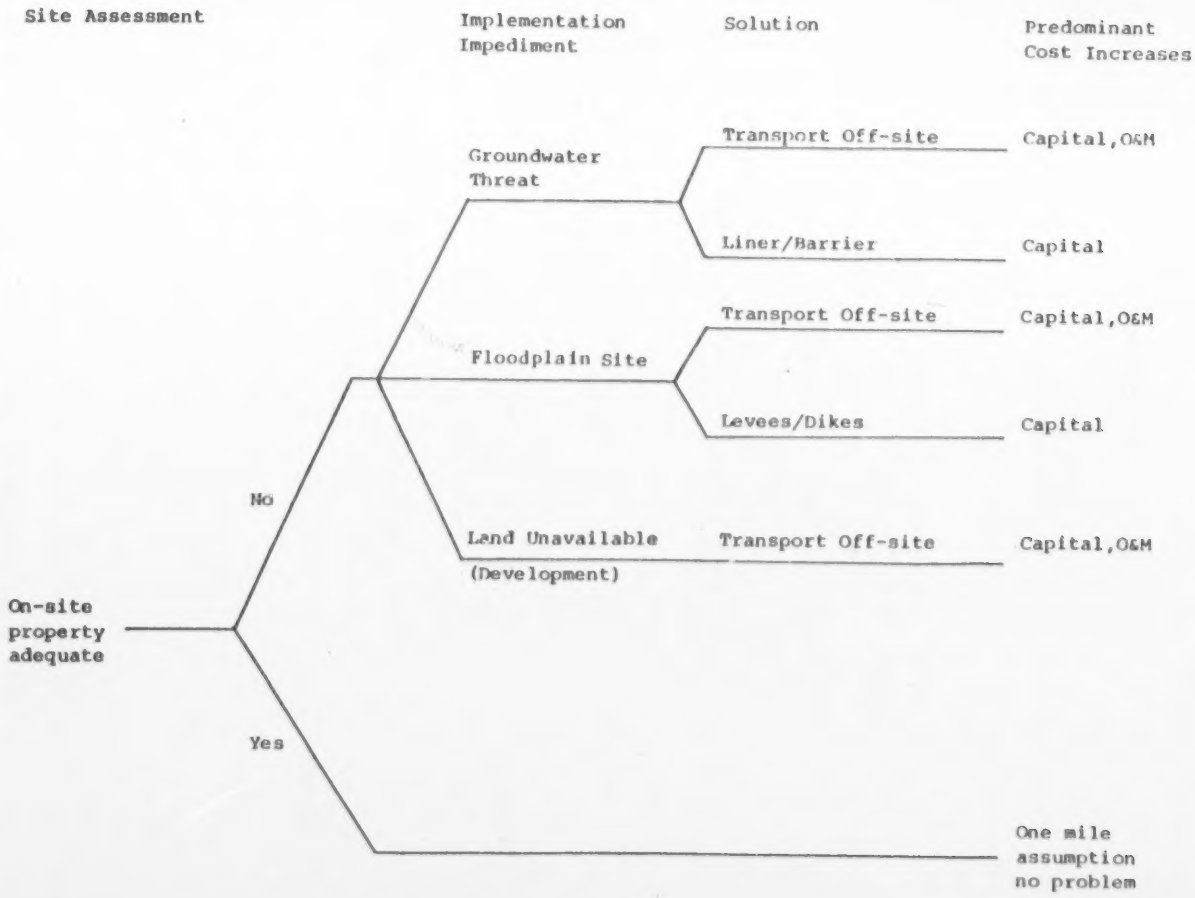
Based on a review of topographic maps from USGS and flood insurance rate maps from the Federal Emergency Management Agency (FEMA) for each of the top 50 plants, Abt Associates identified 14 plants that are unlikely to face substan-

Table 7

Public Hearings and Licensing

State	Public Hearings or Notice Provisions	License Period
Alabama	Any person may submit a request for a hearing to the Board of Health	Permits valid for the design life of the facility
Florida	Public notice required and hearing if warranted	Permits valid for five years
Georgia	An aggrieved person may request a hearing by filing a petition with the Director of the DEP	Permits valid for the life of the facility
Illinois	Public notice and notice to general assembly provided	Operating permits valid until site is completed, or permit revoked. Special waste haulage permit valid for one year
Indiana	Public notice required. Any aggrieved person may file a petition for a hearing	Operating permits valid for two years. One year industrial liquid waste hauling permit
Kentucky	Public notice required. Any aggrieved person may file a petition for a hearing	Permits valid for not more than five years
Mississippi	Public notice required. Hearing held if interest sufficient	Operating permit valid for the life of the facility
Missouri	Four weeks of public comment required	Operating permits issued for the life of the facility
Ohio	Must notify political subdivision, conservancy district and others of intent to build	Annual application for operation
Pennsylvania	Applications to be reviewed by county and municipal governing body and health department	Permits valid for design life of the facility
Tennessee	If within one mile of a municipality, approval of governing body required	Permits valid for life of the facility
West Virginia	Opportunity for public comment and hearings required	Permits valid for a maximum of 5 years
Wisconsin	Local approval required. Six or more people may file a hearing request	Permits valid for two years

Figure 5


Site Assessment
Implementation Impediment
Solution
Predominant Cost Increases
On-site property adequate
No
Yes
Groundwater Threat
Transport Off-site
Capital,O&M
Liner/Barrier
Capital
Floodplain Site
Transport Off-site
Capital,O&M
Levees/Dikes
Capital
Land Unavailable (Development)
Transport Off-site
Capital,O&M
One mile assumption no problem

tial obstacles such as space constraints due to development, flooding hazards/ floodplain restrictions, or restrictions of land use due to the proximity of groundwater sources. These assessments were confirmed by contacting representatives at six of these plants. Generally, these plants would be able to locate a landfill within two miles of their site; however, utility planners still have concerns about siting costs, lead times, and unforseen additional impediments. For instance, one plant has a cyclone boiler which does not produce enough flyash to enable stabilization and landfilling of sludge. This plant may therefore have to install a forced oxidation system or pond its sludge. Other utility representatives expressed concern over the need to purchase additional land even though undeveloped land is available in close proximity.

A review of available data indicates that 36 of the 50 plants identified in the Waxman-Sikorski bill may encounter some problems in siting a disposal facility within two miles of the plant site. As shown in Figure 5 these plants may encounter either increased capital costs (for dikes or liners) or increased transport costs (to more distant suitable sites). In addition, to the extent that plants are located near densely populated areas public opposition to the transport (generally by truck) of large quantities of sludge can be substantial. The remainder of this section discusses site-specific constraints in terms of flooding, groundwater protection, and public opposition.

Flooding

Steam-electric generating stations are usually located near large sources of coolant water. Most of these sites are, therefore, within 100-year flood plains in river basins, or in 100-year storm flood areas at coastal sites. As noted above, three states explicitly prohibit the siting of new facilities in floodplains (Pennsylvania, Tennessee and Wisconsin). There are three plants with moderate probability of encountering floodplain restrictions in these states. Three additional states (Indiana, Ohio and Georgia), containing a total of 10 plants with either a high or moderate probability of encountering floodplain restrictions, may allow waivers for floodplain siting. In the remaining states, state regulatory agencies have the authority to conditionally allow or prohibit siting of an FGD sludge landfill within a floodplain so long as the facility meets specific requirements.[4]

There are two possible solutions for sites located within a floodplain. A protected area can be constructed using floodwater diversions such as levees

[4]The Army Corps of Engineers may also review projects along certain waterways.

and dikes. Floodplain design plans must consider restriction of floodflow, waste washout, and the potential for health and environment hazards. Construction of floodwater barriers around a site entails a capital expenditure and minimal operating and maintenance costs.[5]

Alternatively, flooding hazards can be avoided by transporting the sludge to a disposal facility on higher ground, out of the floodplain either via conveyor, truck, or rail to a landfill, or by pumping FGD slurry via pipeline to an impoundment.[6] In general, transport systems require considerable capital, solutions, longer transport distances will also involve greater annual operating expenditures and, in some cases (pipeline or conveyor transport), greater capital expenditures as well. An Electric Power Research Institute (EPRI) model, as shown in Figures 6 and 7, estimates that transporting sludge by truck to a disposal site ten miles distant requires approximately 11 percent greater capital investment and 37 percent higher total annual revenue as for a site only one mile distant. Obviously, hauling longer distances increases annual costs further.

A review of topographic maps from the USGS and flood insurance rate maps from FEMA indicated that 26 of the plants identified in the Waxman Sikorski bill might encounter floodplain restrictions. As shown in Figure 8, eleven of the 50 sites reviewed were considered highly probable to encounter floodplain restrictions; four of these were coastal sites subject to storm hazards. Another fifteen sites were considered to be somewhat less, or moderately probable to be subject to floodplain restrictions. The remaining twenty-four were considered to have no apparent problem with flooding at property adjacent to the generating station.

As mentioned previously, most states have conditional permits for floodplain sites. While it is impossible to predict how states will oversee siting, construction, and operation of any particular FGD sludge landfill, Abt Associates' contacts with several utilities' environmental planning departments revealed some generalizations.

Expecting the probable rejection of floodplain sites by state regulatory agencies, utilities in Ohio and Wisconsin anticipate transporting sludge out of river basin floodplains. Low lying coastal sites on the other hand, such

---

[5]In the event of flood damage the cost of repair may be considered as a replacement cost, a recurring capital cost, or a maintenance and repair cost.

[6]This analysis assumes forced oxidation scrubbing, sludge dewatering to 80% solids, 30-ton truck haulage, and landfill disposal.

Figure 6.

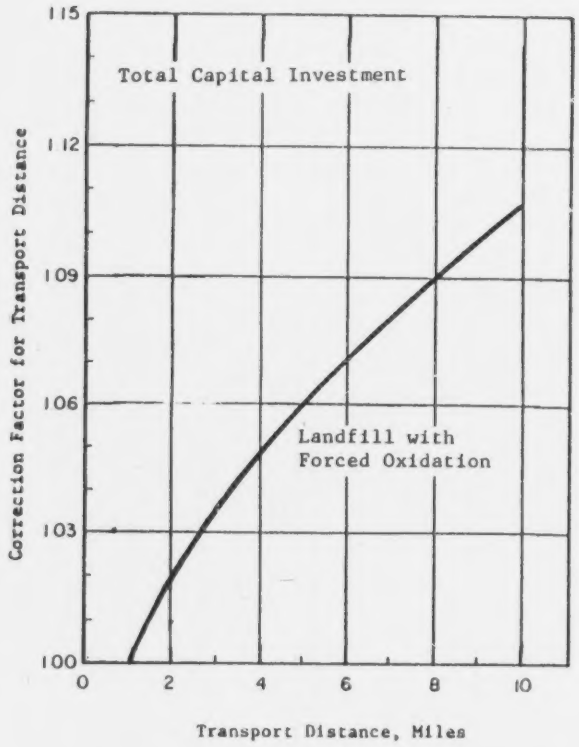
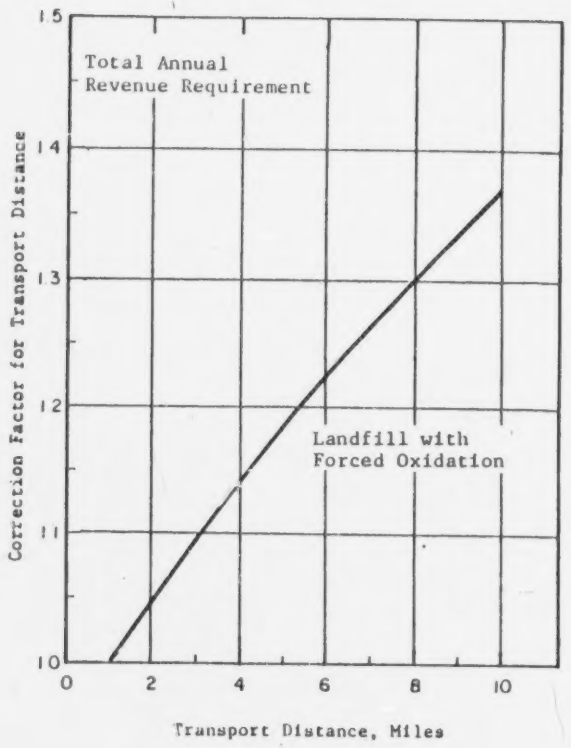


Figure 7.

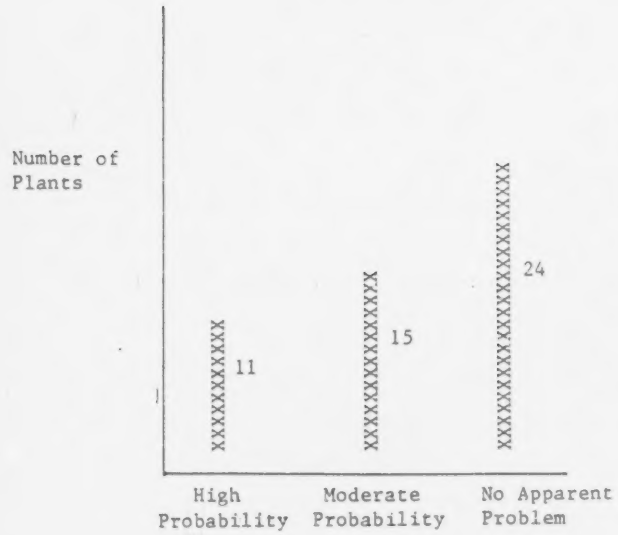


Correction Factors for Distance to Disposal Site

Source: EPRI, FGD Sludge Disposal Manual,
Second Edition, 1980

Figure 8.

FLOODING PROBLEMS AT SITE
(100-year flood/storm)



Source: Analysis by Abt Associates

as those located in Florida, Mississippi and Georgia will probably take special groundwater protection (liners) and washout measures (levees) but will not site inland to avoid 100-year storm inundations.[7] Most other utilities anticipate submitting floodplain siting plans (floodwater diversion projects are by in large less expensive than haulage to a distance site) to the state regulatory agencies and waiting for approval or rejection on a case by case basis.

Development

Limited land availability can result in disposal facility siting problems for individual power generating stations. Original site design for existing plants did not take into account the need for scrubber sludge disposal facilities. These plants, therefore, are in some cases located in areas of relatively dense industrial or residential development where the 105 to 750 acres required for a sludge disposal facility may be difficult to obtain. Plants located in heavily developed areas will face two potential problems. First,

[7]Other constraints, such as pressures from development or lack of nearby hydrogeologically suitable sites, may also force longer distance sludge transport.

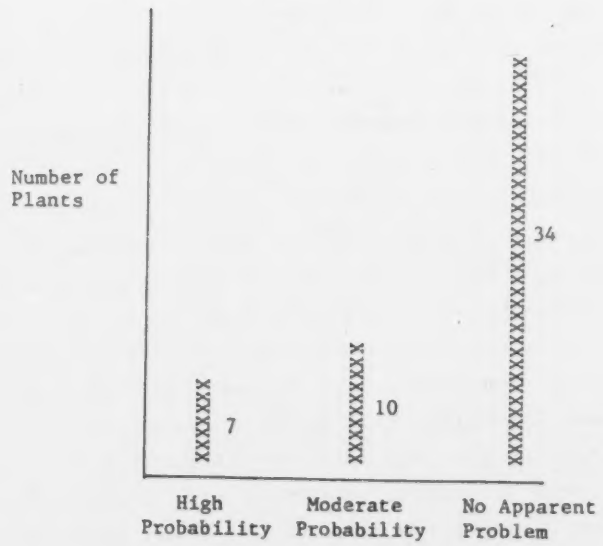
if sufficient land is not available nearby, the plant will incur the additional cost of transporting sludge to more distant locations. Second, they may face substantial public opposition to transporting sludge from the plant to the disposal site if trucks are required to travel through populated areas. As noted previously, approximately 25 to 170 round trips per day will be required to dispose of utility sludge depending on the size of the plant, the sulfur content of the coal it burns and the efficiency of its scrubbers.

In general, development will increase competition for property for all uses. Although zoning ordnances typically reserve some property for industrial use, it is unlikely that either the real estate market or municipal planners would favor siting a landfill of several hundred acres in an urban area unless the property is available at the plant site. Most of the urban power plants examined have ash disposal facilities on-site but do not have the acreage needed to accept sludge from scrubbing all generating units' emissions.

As shown in Figure 9 development constraints are unlikely to be a concern for about two thirds of the plants identified in the Waxman/Sikorski bill. Among the remaining 17 plants, seven are located in densely populated areas where existing development is very likely to impede facility siting within several miles of the plant site. An additional 10 plants may also have siting prob-

Figure 9.

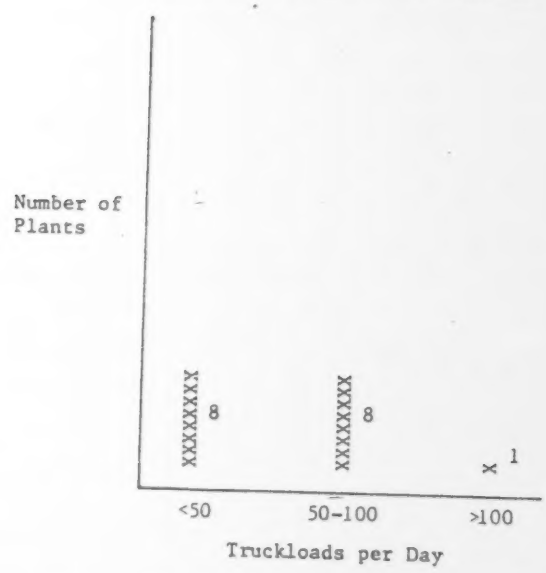
LAND AVAILABILITY PROBLEMS



Source: Analysis by Abt Associates

Figure 10.

TRUCK HAULAGE REQUIRED FOR
SITES CONSTRAINED BY DEVELOPMENT



Source: Analysis by Abt Associates

lems caused by development.

Abt Associates contacted utility planners for six of the seven most constrained sites. Four of these six indicated that they operated ash disposal sites, some as far as 13 miles from the plant, and that larger FGD sludge landfills would probably be off-site as well. The other two sites are owned by TVA and are also subject to urban development pressures, but utility planners felt that the power of eminent domain might, if necessary, be used to acquire nearby property.

While only 17 sites may be affected by development, this may be the most critical constraint because of problems with public acceptance of such a project. Transporting sludge to a more distant site is the obvious engineering solution to development constraints. However, this solution requires public acceptance of haulage and disposal plans. As shown in Figure 10, haulage plans for these 17 plants constrained by development will require the transport of between 25 and 120 truckloads of sludge per day. Eight of these plants will need to transport fewer than 50 truckloads per day. Eight will need to transport from 50 to 100 truckloads per day, and one will need to transport more than 100 truckloads per day. The recent record of successful citizen opposition to major projects argues for careful consideration of the impacts of haulage through, and disposal near settled neighborhoods.

Groundwater

Groundwater protection requirements exist in all states. They can generally be satisfied by installation of a liner (of synthetic, clay, or compacted soil composition) and/or leachate monitoring and control systems. These capital expenditures may amount to over 40 percent of the direct landfill investment. Leachate control systems require both capital investment for installation and annual expenditures for operation and maintenance.

Only five of the 50 sites examined were in areas considered extremely sensitive to groundwater contamination, where the water table was close to the surface and sandy soils were predominant. Detailed site-specific hydrogeologic field evaluations are necessary to determine the ability of natural soils to mitigate contamination and the potential threat to protected groundwater.

To aid planners and landfill applicants, the Illinois State Geological Survey has issued a statewide groundwater inventory, Potential for Contamination of Shallow Aquifers in Illinois. Depending upon program funding other states may follow this lead. In addition, more stringent groundwater protection requirements are being considered under Subtitle D revisions.

IV. COST IMPLICATIONS OF IMPEDIMENTS TO LANDFILL DISPOSAL

As noted earlier, the cost of FGD sludge disposal is anticipated to be small in comparison to the total cost of a scrubbing system. A model developed based on TVA data for EPA estimates that the entire FGD disposal system (including equipment and construction at the generating station) at a 500 MW plant represents 14.5 percent of the total SO_2 emissions control capital investment.

The EPA estimate includes the cost of a liner and assumes that sludge will be trucked a distance of one mile on average. Both estimates assume landfill disposal of dewatered sludge. The prevalence of possible constraints to landfill siting among the top 50 plants suggests that alternative hauling distances be used in alternative cost analyses of FGD sludge disposal. Of the 50 sites reviewed, about 30 appear to be able to site adequately sized landfills within one or two miles of the generating station. The remaining 20 or so sites could be required to site their landfills four to five miles away, with fewer than five plants having to site over ten miles away.

EPA's cost model predicts the impact of increased haulage distance on the cost of FGD sludge disposal. Capital investment for disposal increases at a rate of 10.83 mills/kW/mile and annual operating and maintenance (O&M) costs increase at a rate of .01425 mills/kWh mile.[8] Table 8 illustrates the incremental disposal costs for greater haulage distances at a 500 MW power plant. The capital investment for FGD disposal increases linearly at $542,000 per mile hauled, and the O&M costs increase at $39,200 per mile. At a landfill distance of 5 miles, the incremental costs represent a 14.7 percent ($2,168,000) increase in the capital investment required for disposal, a 1.1 percent ($156,000) increase in first year O&M costs, and a 1.5 percent increase in the annual revenue requirements for SO_2 emissions control over the one mile haulage case. At a distance of ten miles the incremental disposal costs represent a 33 percent increase in capital investment for sludge disposal (a 4.8 percent increase in the total capital investment for SO_2 emissions control), a 2.5 percent increase in first year O&M costs, but only a 3.3 percent increase in total annual revenue requirements. While the incremental disposal costs of hauling sludge to an distant site are considerable, it should be noted that disposal costs (for distances of 10 miles or less) are less than 15 percent of the annual revenue requirement for SO_2 emission control which includes the FGD scrubbing system.

[8]Personal conversation with Seth Schwartz, Energy Ventures Analysis.

Table 8

Impacts of Increased Haulage Distances
on the Cost of Scrubber Sludge Disposal
for a 500 MW Plant

	Baseline Case Costs 1 Mile Haul[a]	Incremental Costs 5 Mile Haul (% increase)[b]	Incremental Costs 10 Mile Haul (% increase)
Capital Cost for Waste Disposal	14,756	2,166	4,878
Levelized Capital Cost (.147 x Capital Cost)	2,169	318 (14.7%)	716 (33.0%)
Total Capital Cost for Scrubber and Waste Disposal	102,041	2,166	4,878
Levelized Total Capital Cost (.147 x Total Capital Cost)	15,000	318 (2.1%)	716 (4.8%)
O&M Cost for 1st Year	14,310	156	351
Levelized O&M Cost (1.886 x 1st Year O&M)	26,988	296 (1.1%)	666 (2.5%)
Levelized Annual Revenue Requirements	41,988	614 (1.5%)	1,383 (3.3%)

[a]Thousands of 1984 dollars.

[b]percentage increase over baseline case.

Appendix A

Constraints to Landfill Siting at Top 50 Power Plants*

	STATE/PLANT NAME	FLOOD PLAIN LOCATION	GROUND WATER PROTECTION	DEVELOPMENT/ PUBLIC ACCEPTANCE	OVERALL CONSTRAINTS TO SITING
1	AL COLBERT	M			X
2	FL CRYSTAL RIVER	M	M		X
3	FL CRIST	M	M		X
4	FL BIG BEND	M	M	M	X
5	GA WANSLEY				
6	GA YATES	M			X
7	IL COFFEEN				
8	IL KINCAID				
9	IL JOPPA			M	X
10	IL BALDWIN				
11	IN BREED	M			X
12	IN TANNERS CREEK	M		M	X
13	IN CLIFTY CREEK			M	X
14	IN MICHIGAN CITY			M	X
15	IN CAYUGA	M			X
16	IN GIBSON				
17	IN WABASH RIVER	M			X
18	KY COLEMAN	M			X
19	KY GHENT				
20	KY MILL CREEK			M	X
21	KY PARADISE				
22	MS JACK WATSON	M	M		X
23	MO HILL				
24	MO NEW MADRID				
25	MO MONTROSE				
26	MO LABADIE	M			X
27	MO SIOUX	M			X
28	OH CARDINAL	M		M	X
29	OH ASHTABULA			M	X
30	OH AVON LAKE			M	X
31	OH EAST LAKE			M	X
32	OH CONESVILLE	M			X
33	OH BURGER	M			X
34	OH GAVIN	M			X
35	OH MUSKINGUM	M			X
36	OH KYGER CREEK	M			X
37	PA CONEMAUGH	M			X
38	PA HOMER CITY				
39	PA BRUNNER ISLAND	M		M	X
40	PA HATFIELDS FERRY				
41	TN ALLEN	M	M	M	X
42	TN CUMBERLAND				
43	TN GALLATIN				
44	TN JOHNSVILLE			M	X
45	TN JOHN SEVIER	M			X
46	WV FORT MARTIN	M			X
47	WV HARRISON			M	X
48	WV KAMMER	M		M	X
49	WV MITCHELL	M		M	X
50	WI S. OAK CREEK			M	X
	TOTAL	24	5	17	34

* 50 plants identified in Phase I of Waxman/Sikorski bill, 98th Congress HR 3400
Source: Analysis by Abt Associates

Appendix B

Scrubber Sludge Generation and Associated Land Area and Haulage Requirements at Top 50 Power Plants*

	STATE/PLANT NAME	1980 SO2 EMISSIONS (1000 TONS/YR)	SO2 EMISSIONS REDUCTION (90%) (1000 TONS/YR)	SLUDGE GENERATED FORCED OXIDATION (1000 TONS/YR)	ACRES REQUIRED CONVENTIONAL LANDFILL (ACRES)	HAULAGE REQUIRED (TRUCKLOADS PER DAY)
1	AL COLBERT	122	110	442	228	51
2	FL CRYSTAL RIVER	67	61	243	126	28
3	FL CRIST	75	67	270	140	31
4	FL BIG BEND	138	124	498	257	57
5	GA WANSLEY	208	187	749	387	86
6	GA YATES	99	89	359	186	41
7	IL COFFEEN	156	141	565	292	65
8	IL KINCAID	209	188	755	391	86
9	IL JOPPA	98	88	354	183	41
10	IL BALDWIN	258	232	932	482	107
11	IN BREED	78	63	353	151	29
12	IN TANNERS CREEK	98	88	354	183	41
13	IN CLIFTY CREEK	295	266	1065	551	122
14	IN MICHIGAN CITY	78	70	280	145	32
15	IN CAYUGA	113	102	409	211	47
16	IN GIBSON	307	277	1110	574	127
17	IN WABASH RIVER	64	57	220	119	26
18	KY COLEMAN	69	62	248	128	28
19	KY GHENT	88	79	317	164	36
20	KY MILL CREEK	56	50	202	105	23
21	KY PARADISE	364	327	1313	679	150
22	MB JACK WATSON	62	56	224	116	26
23	MO HILL	136	122	490	254	56
24	MO NEW MADRID	213	191	767	397	88
25	MO MONTROSE	163	145	583	302	67
26	MO LABADIE	269	242	969	501	111
27	MO SIOUX	111	100	400	207	46
28	OH CARDINAL	123	111	444	230	51
29	OH ASHTABULA	79	71	285	147	33
30	OH AVON LAKE	93	84	335	173	38
31	OH EAST LAKE	169	152	610	314	70
32	OH CONESVILLE	172	154	619	320	71
33	OH BURGER	82	74	297	154	34
34	OH GAVIN	402	362	1451	751	166
35	OH MUSKINGUM	273	246	986	510	113
36	OH KYGEA CREEK	202	182	728	377	83
37	PA CONEMAUGH	192	172	692	358	79
38	PA HOMER CITY	180	162	651	337	75
39	PA BRUNNER ISLAND	139	125	501	259	57
40	PA HATFIELDS FERRY	165	148	595	308	68
41	TN ALLEN	74	66	265	137	30
42	TN CUMBERLAND	326	293	1176	608	135
43	TN GALLATIN	125	112	449	233	51
44	TN JOHNSVILLE	184	166	665	344	76
45	TN JOHN SEVIER	71	64	258	133	30
46	WV FORT MARTIN	93	84	335	174	38
47	WV HARRISON	216	194	780	403	89
48	WV KAMMER	148	133	534	276	61
49	WV MITCHELL	208	187	750	388	86
50	WI S. OAK CREEK	120	108	434	225	50
	TOTAL	7819	7037	28220	14599	3233

* 50 plants identified in Phase I of Waxman/Sikorski bill, 98th Congress HR 3400

Source: Analysis by Abt Associates

Question: Based on EPA's work on sorbent injection, can you provide the subcommittee with an estimate of the comparative costs of utilizing this technology on low, medium and high sulfur coals? Please provide an estimate of the capital cost per kilowatt and the operating and maintenance cost per kilowatthour (KWHr) of meeting a 0.9 lbs per million BTUs monthly standard at a 500 MW power plant burning eastern low sulfur compliance coal, 2.5% sulfur coal and 5% sulfur coal.

Answer: Sorbent injection is an emerging technology which offers the potential for low cost, but moderate efficiency (50-75%), SO_2 control from existing coal fired power plants. The technology involves injection of a dry calcium based sorbent (e.g. hydrated lime) into the furnace and/or duct work of the boiler. The sorbent captures a portion of the SO_2 in the flue gas with a removal efficiency dependent on specific time and temperature available. The capture can be further enhanced by humidification of the flue gas by adding a water spray in the duct work.

LIMB, which is the sorbent injection process in the most advanced state of development, injects hydrated lime in the upper furnace volume. Development work shows the potential for 50 to 60% SO_2 capture; however, the process has not yet been demonstrated on a full-scale utility boiler (the wall-fired demonstration is scheduled to start up in Summer of 1987). Recent R&D has shown that the SO_2 capture can be enhanced to 70-75% by adding an optimized humidification system, thereby allowing increased utilization of the sorbent. This technology needs to be demonstrated at full scale.

In the context of the question there are two limits on sorbent injection technology which must be considered:

1) The maximum expected removal efficiency is 75% for LIMB with a fully optimized humidification, which means that a 0.9 lbs SO_2 per 106 Btu standard can not be achieved with coal sulfur greater than 2.2%.

2) The advantage of LIMB compared to other technologies has been shown to decrease as boiler size increases. While it is technically applicable to all size boilers, sorbent injection is most economical for smaller boilers.

Therefore the scope of this response was modified somewhat from the request:

1) Since 0.9 lbs SO_2 per million Btu cannot be achieved for a 5% sulfur coal with sorbent injection, this case was not considered. The moderate sulfur coal was chosen to have 2.2% rather than 2.5% S for two reasons: 2.2% is a typical value for the top 200 plants; and 0.9 lbs SO_2 per 106 Btu can be achieved with 75% SO_2 capture.

It should also be noted that "compliance coal" was assumed to give 1.2 lbs SO_2 per million Btu (or 0.71% S in the coal) and only a 27% SO_2 reduction was required.

2) In a previous cost study it was determined that for the top 200 plants, a 300 MW boiler was a representative unit for a base case. (While 500 MW is an appropriate case for new boilers, a significant portion of the existing boilers are much smaller). To cover a representative range three boiler sizes were chosen: 100, 300 and 500 MW.

The results of the sorbent injection cost calculations are shown in Table 1, and summarized below:

1. For the 0.71% S coal the capital costs are quite moderate, increasing from $26 per KW at 500 MW to $39 per KW at 100 MW. As boiler size decreases from 500 to 100 MW the 15 year levelized revenue requirement (capital plus O&M) increases from 2.5 to 4.5 mills per KW hr and the associated cost per ton of SO_2 removed increases from $1600 to $2800 per ton.

2. For the 2.2% S coal, the capital cost rises significantly since the basic sorbent injection system must be supplemented with a humidification system. Capital cost increases from $100 to $120 per KW as boiler size decreases from 500 to 100 MW. The 15 year levelized revenue requirement increases from 11 to 13 mills per KW hr as boiler size decreases from 500 to 100 MW, and the associated cost per ton of SO_2 increases from 800 to $910 per ton.

3. While the absolute magnitude of the capital cost and cost per ton of SO_2 increases with decreasing boiler size, the advantage of sorbent injection relative to flue gas desulfurization actually increases. It should be noted that all cost calculations in this response are carried out in "nominal dollars". That is, an inflation rate is assumed and costs are adjusted over time reflecting this expected inflation. In policy analysis, EPA often presents cost estimates in "red" or "constant" dollars leaving inflation out of the calculation. The choice of constant or nominal dollars can change the levelized cost figure considerably but should not greatly affect the comparison between technologies.

Wet Flue Gas Desulfurization (FGD)

Although it was not requested, it appeared that a set of FGD costs based on a fully comparable set of economic premises would be useful. The calculations were based on wet limestone FGD with forced oxidation. To achieve 0.9 lbs SO_2 per million Btu partial scrubbing was used with 72% of the flue gas bypassed for 0.71% S coal and 15% for the 2.2% S coal. No attempt was made to optimize cost through the use of organic acid or scrubber design changes.

The cost calculations are summarized in Table 2. and can be summarized as follows:

1) Since the capital cost ($/KW) is calculated using total unit capacity (KW) and not the KW scrubbed for the two partial bypass cases, the fraction scrubbed and therefore the cost per KW increases as coal sulfur increases. Also the capital cost decreases as the boiler size increases for all three coal sulfur levels. The capital costs range from $120 per KW for a 500 MW plant burning a 0.71% S coal to $440/KW for a 100 MW plant burning a 5.0% S coal.

2) For all coal sulfur levels, the revenue requirement (mills per KWHR) and associated cost per ton of SO_2 decreases with increasing boiler size. Due to the small amount of sulfur removed, the cost per ton of SO_2 is extremely high for low sulfur coal. The revenue requirement (capital plus O&M charges ranged from 8.6 mills per KWHR for a 500 MW plant burning a 0.71% S coal to 35 for a 100 MW plant burning a 5% coal.

3) The capital cost is strongly influenced by the use of a typical 1.6 retrofit factor, representing a typical factor for existing boilers. However, this factor is site specific and any decision to use a lower factor should be on a case by case basis.

Conclusion

The following conclusions can be drawn:

1) For high sulfur coal, sorbent injection can not achieve the 0.9 lbs SO_2 per million Btu standard and FGD would be required.

2) For the 2.2% Coal, sorbent injection technology has the potential for achieving 0.9 lbs per million; however, the system has not yet been demonstrated at 75% SO_2 removal efficiency. The cost calculations indicate that it is an attractive technology relative to FGD especially for 100 and 300 MW boilers.

3) For lower sulfur coal where more moderate control is required, sorbent injection technology offers low capital and operating cost for all boiler sizes. The cost of FGD is quite high and it does not appear to be an attractive option.

4) The applicability of sorbent injection is limited by the assumption that a 0.9 lbs SO_2 per million Btu is required on every plant. For smaller plants burning moderate sulfur coal, where FGD is relatively expensive, sorbent

injection could achieve significant reductions if the standard were less strict in those cases.

5) All costs are based on a consistent set of economic assumptions, using an engineering model, which considers specific system components as a part of the procedure. All costs are levelized on a 15 year basis. Both of these procedures differ somewhat from normal policy cost models and generally result in higher costs.

6) No attempt has been made to optimize FGD design and site specific retrofit factors, which may increase or decrease costs, are accounted for in a general manner.

(THE INFORMATION FOLLOWS)

TABLE 1. COST FOR RETROFIT SORBENT INJECTION
(December 1985 Dollars)

SULFUR %	UNIT SIZE MWe	COST $/TON SO_2*	TOTAL CAPITAL REQUIREMENT, $/kW	REVENUE REQUIREMENT MILLS/KWHR
0.71	100	2832	39	4.46
0.71	300	1821	28	2.87
0.71	500	1618	26	2.55
2.2	100	958	120	12.98
2.2	300	843	109	11.42
2.2	500	807	103	10.93

* 15 YEAR LEVELIZED COST
LEVELIZED CARRYING CHARGE RATE = 16.5%
O&M LEVELIZING FACTOR = 1.452

Basis: NPHR = 9800 Btu/kWh; HHV = 11,900 Btu/lb; Ash = 15.1%; Moisture = 4%; 50% Capacity Factor; $Ca(OH)_2$ @ $55/Ton; Emission Limit = 0.9 lb/MBtu; Control level for 0.71% S coal = 27%, for 2.2% S coal = 75%

TABLE 2. ESTIMATED COST OF WET FGD TO ACHIEVE 0.9 LBS SO_2/106 BTU

COAL SULFUR %	BOILER SIZE MWe	COST* $/TON SO_2	CAPITAL COST** $/KW	REVENUE REQUIREMENT* MILLS PER KWHR
0.71	100	12700	230	18.4
0.71	300	7100	140	10.4
0.71	500	5900	120	8.6
2.2	100	1900	340	26.6
2.2	500	1100	210	15.1
5.0	100	950	440	35.0
5.0	300	700	330	25.9
5.0	500	600	290	22.9

*15 YEAR LEVELIZED
**FGD COST DIVIDED BY TOTAL BOILER SIZE

BASIS:

1) Most items per June 1986 paper, "Control Cost Modeling for Sensitivity and Economic Comparison" (attached)
2) Cl in Coal = 0.1%
3) Stoichiometry calc'd by model
4) Significant assumptions from June 1986 paper (different from TVA base case)
   a. No. of scrubbing trains: 1, 3, 4 for 100, 300, and 500 Mw, respectively
   b. No spare trains
   c. 1.6 retrofit factor
   d. 0% sales tax
   e. OT labor: none
   f. Start-up and modification allowance: 11.6%
   g. Interest during constr.: 6.3%
   h. Overhead rate: 30%
   i. Contingency: 10%
   j. 15 yr. levelized costs
   k. Dec 1985 $ basis for both capital and annualized cost
   l. Partial scrubbing was used with 0.71% and 2.2% S coals, only.

Paper ID 5A

CONTROL COST MODELING FOR SENSITIVITY AND ECONOMIC COMPARISON

by: Norman Kaplan,
David G. Lachapelle,
and
Jeff Chappell
U.S. Environmental Protection Agency
Air and Energy Engineering Research Laboratory
Research Triangle Park, NC

ABSTRACT

Using computerized cost models developed both internally and under contract to EPA by the Tennessee Valley Authority over a period of several years, this paper presents costs for utility retrofit applications of wet flue gas desulfurization (FGD), dry FGD, and the limestone injection with multistage burner (LIMB) process. Capabilities of the models, premises, and limits of the sensitivity study are discussed. Tabular and graphical presentations of the results are included. For a base case of 300 MWe boiler size, 2.2 percent sulfur coal, 50 percent capacity factor, intermediate sorbent cost ($71/ton[1] lime and $15/ton limestone), 1.6 retrofit factor for FGD systems, and 15 year remaining unit life, the unit control costs for wet FGD, dry FGD, and LIMB are 1337, 1120, and 997 $/ton of SO_2 removed, respectively. Sensitivity of costs to each of the above parameters spanning the base case is presented and discussed. Unit control costs are developed for all cases, while capital costs and levelized annual revenue requirements are also presented for the base case.

This paper has been reviewed in accordance with the U.S. Environmental Protection Agency's peer and administrative review policies and approved for presentation and publication.

INTRODUCTION

The Environmental Protection Agency (EPA) is developing control technologies for sulfur oxide (SO_x) and nitrogen oxide (NO_x) emissions. Because of the magnitude of, and the apparent link between, such emissions from power plants and environmental problems such as acid rain, one focus of SO_x/NO_x control has been combustion processes. Previously developed low-NO_x systems for coal combustion are being demonstrated, and methods for removal of SO_x in these systems are under development. A potentially low-cost method for SO_x control is the use of Limestone Injection with Multistage Burners which has the acronym LIMB. Recent technology developments indicate that sorbents other than limestone will yield improved SO_x capture over that obtained with limestone. Further, it is generally felt that it is not necessary to inject the sorbent into the burner region, proper. In fact, development results suggest that SO_x capture is enhanced when the sorbent is injected at a location above the burner zone where a more favorable "sulfation window" exists. Hence, NO_x and SO_x control can be achieved in a decoupled manner. Despite these developments, the acronym "LIMB" will continue to be used throughout this paper because of its general acceptance.

The purpose of this paper is to present results of recent cost studies using computerized cost models for retrofit SO_x and NO_x control technologies.

---

[1] For those more familiar with metric units, see conversions at the end of paper.

The control technologies evaluated for SO_x control are LIMB, wet flue gas desulfurization (FGD), and dry FGD (spray dryers). The approach for NO_x control is with low-NO_x burners.

These technologies are alternative means for mitigating acid rain precursors. The results presented are aimed at examining the sensitivity of control technology costs with respect to the main parameters affecting them. These include coal sulfur content, capacity factor, sorbent cost, boiler size, ease of retrofittability, remaining unit life, and level of control.

LIMITS OF THE SENSITIVITY STUDIES

Preliminary cost modeling indicated that some of the important parameters affecting control technology costs are coal sulfur content, unit capacity factor, sorbent cost, boiler size, ease of retrofittability, remaining unit life, and level of control. For purposes of setting reasonable limits on these parameters, we used general background knowledge relative to the applicability of the technologies to the utility industry, coupled with statistical information from "MEGABASE," a dBase III database containing a range of useful information on utility boilers in the eastern 31 state region where acid deposition is a major concern. MEGABASE has data on 982 utility boilers with a combined capacity of 230,180 MWe. Of these 982 units, 902 have no SO_x controls (other than possible fuel switching), 76 have FGD controls, 3 use physical coal cleaning, and 1 unit is a fluid bed combustor. In setting the limits for the sensitivity analysis, only the 902 units having no SO_x controls were considered. Further, MEGABASE has information on most of the parameters considered in this study. Each of these parameters is discussed below.

COAL SULFUR CONTENT

In establishing limits for the coal sulfur content, primary consideration was given to the current and planned coals used at EPA's LIMB demonstration site at Ohio Edison's Edgewater plant. These are 1.5 and 3.0 percent, respectively. The midpoint of this range (2.2 percent) was established as the base case, and the current and planned Edgewater coals were used as the lower and upper bounds, respectively, for the sensitivity analyses.

To validate this selection, existing coal use data were examined. A survey conducted by the Federal Power Commission (FPC) in 1969 indicates that coal burned in the United States by power plants ranged in sulfur content from 0.4 to 6.0 percent by weight; the weighted average was 2.58 percent (Princiotta and Kaplan, 1972). MEGABASE, dealing with the coals burned in the eastern 31 state region, corroborates the results of the FPC study, showing an average coal sulfur content for the units analyzed of 2.0 percent. These findings support the selection of 2.2 percent sulfur coal as the base case for these studies, and representative of coals burned in both the U.S. and the eastern 31 state region.

CAPACITY FACTOR

Using MEGABASE, it was determined that the average capacity factor for the uncontrolled boilers was 50 percent; therefore, this was established as the base case. The upper limit was set at 65 percent corresponding to a typical capacity factor for a base loaded plant as suggested by EPRI (EPRI, 1982). The lower limit was established at 35 percent to be symmetrical about the base case and representative of intermediate range units.

SORBENT COST

The base case hydrated lime cost was set at $71/ton reflecting the actual quoted price for delivered sorbent at the Edgewater plant for the EPA demonstration project. The National Lime Association was also con-

tacted to substantiate this cost as being representative. They supported this price, indicating a typical cost for calcitic hydrate to be about $50/ton at the manufacturing plant, plus $20/ton for transportation to the power plant, assuming 200 miles of truck transportation. Quotes from various sources for transportation of sorbents, ranged from $0.05 to $0.20/ton-mile, depending upon sorbent type, distance, and transportation mode. Transportation costs for lime are generally higher than for limestone because of the need to tranport lime in closed, pneumatically loaded/unloaded equipment; whereas, limestone can be transported as bulk material in open equipment. The lower and upper bounds of delivered hydrated lime cost were set at $55/ton and $85/ton, respectively, to reflect varying transportation modes and/or distances. Lime manufacturers queried indicated that pebble lime (CaO) and hydrated lime are priced about equally on a $/ton basis. As a result, the same unit cost was used for pebble lime (sorbent for dry FGD) and hydrated lime (sorbent for LIMB).

The base case limestone cost delivered to the plant was set at $15/ton. This was based on information obtained from TVA (Sudhoff and Torstrick, 1985), EPRI (McElroy, 1985), and the National Lime Association which corresponded to 14, 16, and 15 $/ton, respectively, when adjusted to January 1986 dollars and using equivalent transportation distance from quarry to power plant as was used for lime. The lower and upper bounds of delivered limestone cost were set at $12/ton and $18/ton, respectively, to reflect a range of transportation distances and other market factors.

BOILER SIZE

Using MEGABASE, the average boiler size of the uncontrolled units was found to be in the 200 to 300 MWe range. Preliminary sensitivity analyses for various control technologies indicated that unit cost ($/ton of pollutant controlled) is reduced as boiler size increases. Consequently, for this study, the base case was set at 300 MWe, which results from rounding off the average boiler size to the higher end. The upper end of the range for this study was set at 500 MWe, consistent with TVA's selection as their base case for a new base loaded unit (Sudhoff and Torstrick, 1985). The lower end of the range was set at 100 MWe to be symmetrical about the base case, and also represent the lower end of the utility boiler range.

RETROFIT FACTOR

Generally, the cost of retrofitting a control system is greater than the integration of a similar system during the construction of a new boiler.

In the LIMB cost model, the additional costs associated with retrofit include upgrades to an existing electrostatic precipitator (ESP), SO_3 conditioning for flyash resistivity improvement, sootblower upgrades, and economizer modifications to deal with the additional solids deposition on heat transfer surfaces. Additionally, it is assumed that low-NO_x burners would be retrofitted along with the sorbent injection system, and thus their cost is included.

For both wet and dry FGD, the factors that increase retrofit costs relative to new integrated control system costs are more site specific since both retrofit and new systems include the same component parts. Some site specific retrofit parameters were described by Energy Ventures Analysis, Inc. (EVA) in their report, "Evaluation of SO_2 Emissions and the FGD Retrofit Feasibility at the 200 Top Emitting Generating Stations," (Energy Ventures Analysis, 1986). Included are stack and boiler modifications, demolition of existing structures, soil conditions, site congestion, underground obstructions, and additional ductwork. Consequently, the additional costs for retrofitting FGD are generally accounted for by using an overall retrofit factor which is used as a multiplier to the total capital requirement. Those items that are dependent upon capital are changed accordingly.

The base case retrofit factor for both wet and dry FGD was set at 1.6. The EVA report categorized retrofittability as "easy - 1.0 to 1.3, modest - 1.3 to 1.6, difficult - 1.6 to 1.9, and very difficult - 1.9 or more times the capital cost of a FGD system at a new 500 MW plant." In the EVA report, 120 of the 200 plants were identified as potential FGD candidates, and site-specific retrofit factors were developed for these plants. As indicated above, the EVA study relates retrofit factor to a standard 500 MWe plant. Since our models for both LIMB and FGD account for the effect of size, appropriate discounting of the size effect in the EVA report was necessary. To determine an appropriate retrofit factor for the 300 MWe base case, the EVA retrofit factors for all units in the 250 to 350 MWe range were averaged and corrected for the size effect. This resulted in an average retrofit factor of 1.58.

To set the bounds for sensitivity analysis, retrofit factors of 1.3 and 1.9 were selected to represent easy-to-moderate and difficult-to-very difficult cases.

REMAINING UNIT LIFE

For the base case, a 15 year remaining life was selected for the units as being representative of retrofit candidates. A range of 10 to 20 years was arbitrarily selected to be symmetrical about the base case and to allow sensitivity analysis.

LEVEL OF CONTROL

The base case level of SO_2 control was set at 50 percent for LIMB and at 83.8 percent for FGD, corresponding to New Source Performance Standard (NSPS) requirements for the base case 2.2 percent coal. It should be noted that a real sensitivity analysis was not conducted for FGD, since the NSPS level of control was used in all cases. However, for LIMB the effect of a higher control level (60 percent) was examined. This approach was based on potential improvements in the LIMB process; i.e., sorbent reactivity.

TECHNICAL PREMISES

In this study, there are premises and parameters common to each of the three technologies, and others that are technology specific. Some of the parameters and the values used in this study are discussed below.

COMMON OR RELATED PARAMETERS

- Unit Status: This study is limited to retrofit (as opposed to new unit integrated) control technologies.
- Net Plant Heat Rate: A value of 9800 Btu/kWh was used for all boiler sizes.
- Coal: In order to present a parametric study based only on coal sulfur content, the TVA wet FGD base case was used; however, the coal sulfur content was adjusted to the 1.5, 2.2, and 3.0 percent values previously discussed with corresponding adjustments to the carbon content so that the ultimate analysis totalled 100 percent. The impact on coal heating value by this approach was minimal as verified by the DuLong calculation method and thus a constant value of 11,900 Btu/lb was used. For these coals, the ash and moisture contents were held constant at 15.1 and 4.0 percent, respectively.
- Stoichiometric Ratio (SR): For LIMB, SR is defined as moles Ca/moles S in coal. For dry FGD, SR is defined as moles Ca/moles SO_2 entering the control system. Since it is assumed throughout this study that 100 percent of the sulfur is converted to SO_2 in the boiler, the SR definitions for LIMB and dry FGD are equivalent.

For wet FGD, SR is defined as moles Ca/mole SO_2. It should be noted that a LIMB system using an SR of 2 and achieving 50 percent SO_2 control would be equivalent to an SR of 4 using the wet FGD definition.

- Firing Method: Wall-fired boilers were assumed for all the LIMB analyses. This only affects low-NO_x burner costs for LIMB and has no bearing on FGD.

- Waste Disposal: Dry off-site waste disposal was assumed for LIMB. For dry FGD, on-site landfill in a clay-lined disposal site located 1 mile from the scrubber area was assumed. For wet FGD, an oxidation process was assumed, converting 95 percent of the sulfite to sulfate, and yielding a filter cake containing 85 percent solids. This waste was assumed to be disposed of in an on-site clay-lined landfill located 1 mile from the scrubber area.

FGD SPECIFIC PARAMETERS/PREMISES

In general, the technical premises used by TVA (Sudhoff and Torstrick, 1985) in their model and base case run were used here unless otherwise noted. The TVA dry scrubbing user's manual has not yet been published; however, most of the premises are the same as in the cited report. The TVA wet and dry FGD models each have about 100 input parameters, many of which are not of interest to the reader, and do not affect the sensitivity results presented in this study as long as they are maintained constant throughout. Consequently, only the more important of these parameters will be cited and discussed here. The reader is referred to the TVA user's manual if more detail is desired.

- Scrubber Type: For wet FGD, a spray tower absorber is used. For dry FGD, a conical bottom, carbon steel, spray dryer with rotary atomizer is used.

- Number of Operating Scrubbers: The TVA user's manual for wet and dry scrubbing provided default values for their 500 MWe base case. It should be noted that TVA used four scrubbers for wet FGD, and only three scrubbers for dry FGD on their 500 MWe case. TVA generally recommends 125 MWe or 513,000 scfm per absorber whichever is larger. Information on the number of operating scrubbers used in this paper is presented in Table 1.

- Spare Absorber Trains: For the retrofit cases presented in this paper, no spare absorber trains were used.

- Spare Sorbent Preparation Units: For wet FGD, the purchased sorbent is raw crushed limestone; thus, one spare preparation unit was used. However for dry FGD (and LIMB), the purchased sorbent was a commercial grade lime or hydrate; thus, no spare preparation unit was used.

- Emergency Bypass: For both wet and dry FGD, emergency bypass of 50 percent of the flue gas normally scrubbed was provided to ensure continuous operation of the boiler while most absorber maintenance could be performed.

- Reheat: Reheat to 79.4° C (175° F) by in-line steam tube reheater was provided for FGD.

- Hot Gas Bypass: When required to achieve the desired removal level, some 371° C (700° F) gas is bypassed around the air heater to provide the necessary heat for spray drying the required amount of lime slurry. This is based on a 10° C (18° F) approach to saturation temperature, and is automatically calculated by the model.

ECONOMIC PREMISES

The economic premises used in this study have been taken primarily from the EPRI Technical Assessment Guide (EPRI, 1982) and proposed revisions thereto. The major premises affecting the results of this study are shown in Tables 2 and 3.

Since there are minor differences between EPRI and TVA in the formats for presenting estimated costs, adjustments were made to the TVA methodology to bring it as close as possible to the EPRI format. Three of the main adjustments involved allowance for funds during construction (AFDC), inventory capital and preproduction costs. EPRI allows for both the inflation rate and the cost of capital in their AFDC calculation, while TVA does not. The TVA category for start-up and modification allowance was used to substitute for the EPRI inventory capital and preproduction costs.

DESCRIPTION OF COST MODELS

LIMB

The EPA LIMB cost model was developed in-house over 2 years ago at the Air and Energy Engineering Research Laboratory at Research Triangle Park, N.C. (AEERL). The computer program was initially developed using BASIC language on a Zenith 100 microcomputer. The original program and imbedded comments contained about 1000 lines of code and, when the optional printed reports were produced, a typical session and associated case study took less than 3 minutes to complete. More recently, the LIMB cost model has been adapted to a spread sheet format using LOTUS 1-2-3 TM and is run on an IBM AT microcomputer. The program is designed for minimum user input of LIMB operating and performance data and generates corresponding material balances, solids distribution, emissions summary, tons/year SO_2 removed at the specified capacity factor, detailed capital requirements, operating and maintenance costs, first year costs, levelized costs, and cost per ton of SO_2 removed. The spread sheet format has further increased the speed at which sensitivity studies can be run and has been especially useful for the types of analyses presented in this paper since graphics can be generated using the spread sheet software. The LIMB cost model uses cost estimating methodology in accordance with the EPRI Technical Assessment Guide and is considered to be a Class II preliminary estimate with an absolute accuracy of -15 percent to +30 percent and comparative accuracy of -10 percent to +10 percent.

WET FGD

Since the late 1960's, EPA and its predecessors have sponsored the development of wet FGD technology through a number of R&D contracts and in-house work. A major portion of this work was conducted from 1968 to 1980 in an EPA prototype test facility located at TVA's Shawnee Steam Plant near Paducah, Kentucky (Sudhoff and Torstrick, 1985). TVA was the constructor and operator of the facility, and Bechtel National, Inc. was the primary test contractor. The test facility consisted of three 10 MWe equivalent prototype scrubbers, a venturi/spraytower, a mobile bed absorber, and a marble bed absorber which was later converted to a cocurrent absorber system.

Initially, an extensive series of lime and limestone FGD tests were made over a wide range of conditions. Later, tests involving forced oxidation, and magnesium oxide and adipic acid additives were conducted in an effort to reduce scrubber fouling, improve waste characteristics, and enhance SO_2 removal.

The data developed during the tests sponsored by EPA were used to develop a computer model to project conceptual designs and economics for lime and limestone FGD processes. Bechtel developed the computer procedures to calculate material balances, flow rates, and stream compositions, while TVA developed premises and procedures to project economics of the processes.

The TVA user's manual (Sudhoff and Torstrick, 1985) provides the information and procedures necessary to use the model but it does not describe the concepts and mathematics upon which it is based. No fully comprehensive description of this basis has been published because of the frequent revisions and additions that have been made during its development.

The model is general in nature and is capable of projecting conceptual designs and economics for a range of power plant and FGD conditions; however, in this paper, the range of conditions investigated is limited in order to achieve a reasonable parametric study of certain selected parameters. The results are similar to those of preliminary conceptual design evaluations and are expected to have absolute accuracies of about -15 percent to +30 percent and comparative accuracies of about -10 percent to +10 percent.

DRY FGD

Spray dryer FGD technology, or dry scrubbing, as it is sometimes called, evolved in the utility industry in the 1970's from efforts to develop an FGD system capable of achieving reasonably high SO_2 removal in a simpler process than wet FGD. Dry FGD is not totally dry, since it requires that the alkaline sorbent (lime or other alkali) be contacted with the flue gas initially as a slurry or solution; however, the water in that slurry or solution is completely evaporated during contact and a dry waste product results.

Because of the potential advantages and the commercial utility interest in the technology, EPA funded the development of a computer model by TVA to generate conceptual designs and process economics for lime spray dryer/baghouse systems starting in 1982. The dry FGD model thus developed is patterned after the wet FGD model, and a user's manual has been written, reviewed, and is to be published shortly.

The basis for the model is a generic spray dryer/baghouse system using lime as the alkali sorbent. Although numerous spray dryer vendors have slightly different process designs, most of the differences are concentrated in the spray dryer vessel itself. The spray dryer vessel in this model is based on the Niro Atomizer, Inc., design with a single rotary atomizer, a side gas exit, and a single recirculating slurry feed loop with a head tank to feed the atomizer.

Like the wet FGD model, this model is considered a preliminary conceptual design model with an absolute accuracy in the range of -15 percent to +30 percent, and a comparative accuracy between different model projections of about -10 percent to +10 percent.

RESULTS

Cost and sensitivity analyses were conducted to evaluate the effect of: coal sulfur content, boiler capacity factor, sorbent cost, boiler size, retrofittability (for FGD systems), and book life. The strategy used for sensitivity analysis was to evaluate the unit control cost of wet FGD, dry FGD, and LIMB at the base case, and then vary each of the above parameters around the base case as described under LIMITS OF SENSITIVITY STUDIES, above. Results of these analyses are given in Table 4. Additionally, the results are graphically presented in Figures 1 through 6. Although only three points were evaluated for each parameter (base, lower limit, and upper limit), a curve-fitting technique (Lagrange's interpolation formula) (Scarborough, 1962) was integrated with LOTUS 1-2-3 to calculate and graph the data range. The accuracy of intermediate points using this time-saving methodology was verified by cross-checking selected intermediate points against computer model results, and the Lagrange interpolation results were found to be within 0.5 percent of those generated by the computer models.

For the base cases, a breakdown of unit control costs into their cost components was made to illustrate the distribution into total capital re-

quirement, levelized annual revenue requirement, capital charges, and levelized operating and maintenance (O&M) costs to lend perspective to the later discussion of results. This breakdown for the base cases is presented in Table 5 which expresses the cost comparisons in both $/ton SO_2 removed and mills/kWh of electrical energy produced. Additionally, the percent SO_2 removal and corresponding annual SO_2 reductions are presented. The data indicate that the capital charge component of the total levelized annual revenue requirement is 48, 55, and 29 percent for wet FGD, dry FGD, and LIMB, respectivelly, thus indicating that LIMB is less capital cost intensive than FGD. Wet and dry FGD are 34 and 12 percent more expensive, respectively, than LIMB when expressed in $/ton of SO_2 removed, while they are 125 and 89 percent more expensive, respectively, than LIMB when expressed in mills/kWh. LIMB at 50 percent removal results in fewer tons of SO_2 removed than do either wet or dry FGD at NSPS levels; consequently, when the total cost is distributed over tons of SO_2 removed, LIMB's cost advantage is not as great as when the total cost is distributed over a constant amount of electrical energy produced. It is noteworthy that control strategists might be more interested in the unit cost of SO_2 removal, while utility companies might be more interested in the unit control cost of electrical energy produced.

UNIT CONTROL COST VS. COAL SULFUR

The effect of coal sulfur on control cost is shown in Figure 1. It should be noted that NSPS levels were assumed for both wet and dry FGD, while constant removal percentages were assumed for LIMB. Although this paper deals with retrofit control costs, the assumption of NSPS levels for FGD was made because to have assumed lower removal rates for FGD, would have unduly increased the FGD unit costs. NSPS require at least 70 percent removal, emissions of not more than 1.2 lb SO_2 per million Btu, and a lower SO_2 emission limit of 0.6 lb SO_2 per million Btu, thus resulting in a sliding scale of SO_2 removal as shown below:

1.5% S: 76.2% SO_2 removal,
2.2% S: 83.8% SO_2 removal, and
3.0% S: 88.1% SO_2 removal.

LIMB at 50 percent removal exhibits lower cost per ton of SO_2 removed than both wet and dry FGD up to about 2.6 percent sulfur. Beyond this point, there is a crossover, with dry FGD showing a slight advantage over LIMB. LIMB at 60 percent SO_2 removal is also shown for situations where this improved performance might result from higher sorbent activity and more favorable boiler conditions such as residence time in the sulfation window. This 60 percent LIMB case assumed no increase in stoichiometry or sorbent cost, but it might be the result of technology improvements only. For this situation, LIMB exhibits consistently lower control costs than either wet or dry FGD. LIMB's cost advantage is especially evident for the mid-range and lower sulfur coals.

UNIT CONTROL COST VS. CAPACITY FACTOR

The effect of capacity factor on control cost is shown in Figure 2. Similar behavior is displayed by each of the three technologies in that control costs decrease as boiler capacity factor increases. However, the effect of capacity factor is more pronounced for wet and dry FGD than for LIMB. Increasing the capacity factor from 35 to 65 percent results in a reduction in control cost of 39, 38, and 24 percent for wet FGD, dry FGD, and LIMB, respectively. This is primarily attributed to FGD systems being more capital cost intensive than LIMB. Consequently, as more SO_2 is removed as a result of increased plant utilization, these larger capital costs become a smaller portion of the control cost ($/ton SO_2 removed).

UNIT CONTROL COST VS. SORBENT COST

The effect of sorbent cost on control cost is shown in Figure 3. As expected, control costs increase as sorbent costs increase; however, this

is more pronounced for LIMB than for wet or dry FGD since LIMB is more O&M cost intensive, and the cost of sorbent makes up a large portion of these costs. Increasing the hydrated lime cost from 55 to 85 $/ton results in an increase in control cost of 5 percent and 24 percent, for dry FGD and LIMB, respectively. With wet FGD, a 50 percent increase in limestone cost, from 12 to 18 $/ton, results in only a 2 percent increase in unit control cost. Since sorbent utilization is greater for wet and dry FGD, and since FGD systems are more capital cost intensive than LIMB, sorbent cost is not as dominant a factor for FGD.

UNIT CONTROL COST VS. BOILER SIZE

The effect of boiler size on control cost is shown is Figure 4. All three technologies exhibit similar behavior due to economies of scale. Increasing the unit size from 100 to 500 MWe results in a decrease in unit control cost of 40, 37, and 23 percent, for wet FGD, dry FGD, and LIMB, respectively. The effect of boiler size on unit control costs for FGD is more pronounced since these technologies are more capital cost intensive than LIMB.

UNIT CONTROL COST VS. RETROFIT FACTOR

The effect of retrofit factor on control cost is shown in Figure 5. An attempt is made here to show a comparison of the relative ease of retrofit for the three technologies. It is important to note that the models handle retrofittability in an entirely different manner for FGD and LIMB. For LIMB, the difficulty of retrofit is implicit in the model and is accounted for in several process capital categories which reflect the increase in total solids being handled by the system. These categories include economizer modifications, upgrades to sootblowers, ESP upgrades, and SO_3 conditioning for maintaining ESP performance. Additionally, maintenance costs are adjusted based on the increase in process capital. For FGD, the ease or difficulty of retrofit cannot easily be attributed to such specific items. Consequently, for FGD systems the difficulty of retrofit is handled by applying a multiplier (retrofit factor) to the capital cost for an equivalent new system. Thus, the capital costs are directly affected by this factor, while the O & M costs that are a function of capital, are adjusted accordingly. Obviously, Figure 5 shows a steadily increasing rise in control costs for FGD as a result of application of the retrofit factor while LIMB does not because of the manner in which retrofit difficulty is handled. The value of 1.6 used for the FGD base cases was supported by work performed by Energy Ventures Analysis, Inc. (EVA, 1986).

UNIT CONTROL COST VS. BOOK LIFE

The effect of book life on control cost is shown in Figure 6. For both wet and dry FGD, there is a decline in control cost up to a book life of between 15 and 20 years, after which the costs rise monotonically. The reason for this is that the control cost is comprised of both a levelized capital carrying charge component and a levelized O&M cost component. As book life is increased, the carrying charge factor decreases, while the O&M levelization factor, which is a function of inflation and discount rates, increases. At about the 15 to 20 year time frame, there is a crossover point at which the rise in O&M costs offsets the decline in carrying charge rate, and unit control costs begin to slowly increase with book life. With LIMB, which is more O&M cost intensive, the decline in carrying charge is always offset by the increase in O&M over the range of book life considered.

MODEL UPGRADES

Plans are currently underway to upgrade the current LIMB cost model. The model will continue to be formatted as a spread sheet using LOTUS 1-2-3 TM to allow rapid sensitivity analyses and will also employ an expanded number of user options to permit cost optimizations.

The revised model will include a number of new and/or revised algorithms and user-selected options that will further improve the accuracy of the cost model. These revisions are based to a large extent on results from two EPA-sponsored programs with Riley Stoker Corp. and Combustion Engineering, Inc. (EPA contracts 68-02-3912 and 68-02-3915). These studies were directed toward establishing boiler design criteria for application of retrofit LIMB technology to utility-size coal-fired boilers. Virtually every aspect of the boiler and associated auxiliaries was examined as part of these studies with emphasis on the extent and cost of modifications required to accommodate LIMB and ensure boiler operability and reliability. More recently, studies have been initiated with Combustion Engineering, Inc., and Babcock & Wilcox (EPA contract 68-02-4238) to evaluate the use of LIMB technology for new applications where NSPS compliance is required. To date, the studies have provided detailed information to permit refinements in a number of categories, including:

- Injection system costs as a function of sorbent type, with the ability to include pulverizer and pulverizer-related equipment depending on the sorbent selected.
- Detailed breakdowns of in-plant power use on a subsystem level for such categories as pulverizers, solids handling, ash handling, and SO_3 conditioning.
- Refinements relative to determining the costs associated with additional sootblowing requirements as a function of coal sulfur, ash content, and incremental solids loading.
- Cost estimating procedures for economizer modifications and, in the case of new units, for redistribution of surface area in the finishing superheat, reheat, low-temperature superheat pendants, low-temperature horizontal superheat, air heater, and economizer sections.
- An additional low-NO_x burner option for the case of tangentially fired boilers. This takes the form of a combination of overfire air and the Low-NO_x Concentric Firing System.
- Consideration of the necessary upgrades that may have to be made to the ash handling systems.
- A procedure to calculate the gas flow through the unit, including CO_2 and H_2O evolved during the calcination step, depending on the sorbent selected. This gas flow calculation is used later in the program to calculate the amount of SO_3 needed to achieve a specific ppm level of SO_3 in the flue gas.
- An option to optimize the costs associated with particulate collection by a combination of high efficiency cyclones and upgraded ESP, compared to ESP upgrades alone.
- A number of revised economic factors included in the model to better represent the current economic climate. As is the case throughout the model, these default values may be overridden by the user. These factors are in turn used to calculate the levelization factors for capital carrying charges and operating and maintenance costs.

A number of other features are being considered for the revised model including:

- Forward or backward adjustments in the base year for reporting costs to allow easier comparison to other cost estimates reported in a different base year.

- An expanded breakout of process capital in the cost report.

- General fine-tuning throughout the model to further improve accuracy and simplify computational procedures.

Once all of these model upgrades are completed, the model will be subjected to a rigorous checkout to ensure its accuracy. Following this, it is planned to document the model development and submit it into EPA's peer review process. Once this is completed, the model can be made available for general distribution through normal report acquisition channels.

In order to allow various control technologies to be compared and coupled using the same set of premises and cost reporting formats (TVA or EPRI), an Integrated Air Pollution Control System (IAPCS) cost model has been developed by PEI Associates, Inc. under contract with EPA. The original version of this model was finalized in November 1983, but not published. Since then, with the greater interest in comparing LIMB costs with other competing control technologies, the IAPCS model has been greatly revised and enhanced.

The original model contained nine modular control technologies:

1. Overfire air/low-NO_x burners (OFA/LNB)
2. LIMB
3. Physical coal cleaning (PCC)
4. Spray Humidification (SH)
5. Electrostatic precipitator
6. Fabric filter (FF)
7. Lime spray drying (LSD)
8. Lime/limestone slurry flue gas desulfurization (FGD)
9. Dry sorbent injection (DSI)

The modular concept allows the user to combine these technologies in the order and combination desired (assuming a reasonable selection).

The recent revisions to the model are both general and specific. Specific revisions affect only the LIMB, ESP, FF, and FGD modules. The LIMB module is now based on the EPA in-house LIMB cost model, the ESP and FF modules are based on a model developed for EPA by Research Triangle Institute (Viner and Ensor, 1984), and the FGD module is based on the TVA wet FGD model; however, the DSI module is outdated and is not based on the TVA dry FGD model that forms the basis for this paper. General revisions include the ability for the user to enter unit costs in any year $ (time value of money) and to produce cost results in any time frame; to generate results in either EPRI or TVA cost format; and to calculate within the model various economic and technical parameters or to override these with user input values. Improvements have also been made to make the model more "user friendly."

The IAPCS model is written in Fortran and is operable on the IBM PC computer or equivalent. The program will be published with a companion user's manual through the NTIS system, and will be available to the general public shortly. It is expected to become a useful tool for utility companies, architect/engineering companies, government agencies, and others having a need to estimate control costs or to determine how various factors affect them.

To use the model the user will be queried for the input of about 15 variables. The model, however, is sensitive to over 100 other variables which are assumed by the model to have certain default values. The default values can also be changed at will by a user and are contained in separate files called parameter files. In this manner the model can be both "user friendly" to the inexperienced user, and extremely versatile to the more seasoned user. The model can be run either batchwise or interactively.

COST ESTIMATES FOR POTENTIAL LIMB INNOVATIONS

One of the main advantages of cost modeling is that it allows evaluation of potential innovative schemes as to their merit, and thus aids in the prudent use of available research and development funds. As an adjunct to the LIMB cases presented thus far, several advanced approaches have been considered. However, it should be noted that these approaches are not confirmed by experimental results, but rather represent optimistic projections of LIMB performance resulting from the coupling of these advanced approaches. These include:

- Use of promoted sorbents (e.g., with 5 percent soda ash),
- Flue gas humidification upstream of the ESP, and
- Recycle of unreacted CaO.

Promoted sorbents are assumed to be more reactive than the base sorbent and hence provide higher SO_2 capture. Humidification is assumed to benefit both particulate collection and SO_2 capture. It is assumed that, if humidification is used, no ESP upgrades are required, and the capital investment for humidification equals that which would have been spent for an ESP upgrade. Recycle of unreacted CaO is assumed to improve overall sorbent utilization and thus reduce fresh sorbent feed requirements. The approach to evaluating recycle was handled in two ways. In one approach, a capital cost of $10/kW was assumed for the recycle system. The other approach (scenario 4) assumed an increased cost for sorbent with no accompanying capital expenditure for a recycle system. Here, it was assumed that the sorbent cost was a weighted average of fresh limestone feed and recycled hydrated lime.

The following five scenarios were evaluated using the base case premises except as noted:

1. Promoted calcitic hydrate sorbent at $76/ton, 70 percent SO_2 removal.
2. Calcitic hydrate with humidification, 65 percent SO_2 removal.
3. Calcitic hydrate with humidification, and a recycle system at a cost of $10/kW, 65 percent SO_2 removal.
4. Promoted limestone with humidification and recycle of unreacted sorbent which was processed off-site, 65 percent SO_2 removal.
5. Promoted calcitic hydrate at $76/ton with humidification and a recycle system at $10/kW, 80 percent SO_2 removal.

The unit control costs associated with these scenarios are:

Scenario	Unit Cost, $/ton SO_2
1	814
2	786
3	710
4	637
5	615

These results suggest significant potential might be realized if these innovative approaches can be developed and implemented.

CONCLUSIONS

Based on the results of this sensitivity analysis, it is found that LIMB's cost effectiveness improves relative to wet and dry FGD with decreasing:

- Boiler size,
- Coal sulfur content,
- Capacity factor,
- Remaining unit life,
- Ease of retrofit (e.g., space requirements), and
- Sorbent cost.

Further, the analysis shows that both wet and dry FGD are more capital cost intensive than LIMB; whereas, LIMB is more dependent on O&M costs.

CONVERSION UNITS

To convert from	to	Multiply by
tons	tonnes	0.907
miles	km	1.609
Btu	J	1055
lb	kg	0.454
ft^3	m^3	0.0283
$lb/10^6$ Btu	ng/J	433
gal.	m^3	0.00378
acres	m^2	4047

REFERENCES

Electric Power Research Institute (EPRI), "Technical Assessment Guide," TAG", EPRI P-2410SR, Special Report, May 1982.

Energy Ventures Analysis, Inc. (EVA), "Evaluation of SO_2 Emissions and the FGD Retrofit Feasibility at the 200 Top Emitting Generating Stations," Jan. 10, 1986.

McElroy, M./D. G. Lachapelle, Letter dated May 23, 1985.

Princiotta, F. T. and N. Kaplan, "Control of Sulfur Oxide Pollution from Power Plants," Environmental Protection Agency, Control Systems Division, Research Triangle Park, N.C. 27711, Oct. 1972.

Scarborough, J.B., "Numerical Mathematical Analysis," 5th Edition, The John Hopkins Press, 1962.

Sudhoff, F. A. and R. L. Torstrick, "Shawnee Flue Gas Desulfurization Computer Model Users Manual," EPA-600/8-85-006 (NTIS No. PB 85243111), U.S. Environmental Protection Agency, March 1985.

Viner, A. S. and D. S. Ensor, "Computer Programs for Estimating the Cost of Particulate Control Equipment," EPA-600/7-84-054 (NTIS No. PB 84183573), U. S. Environmental Protection Agency, April 1984.

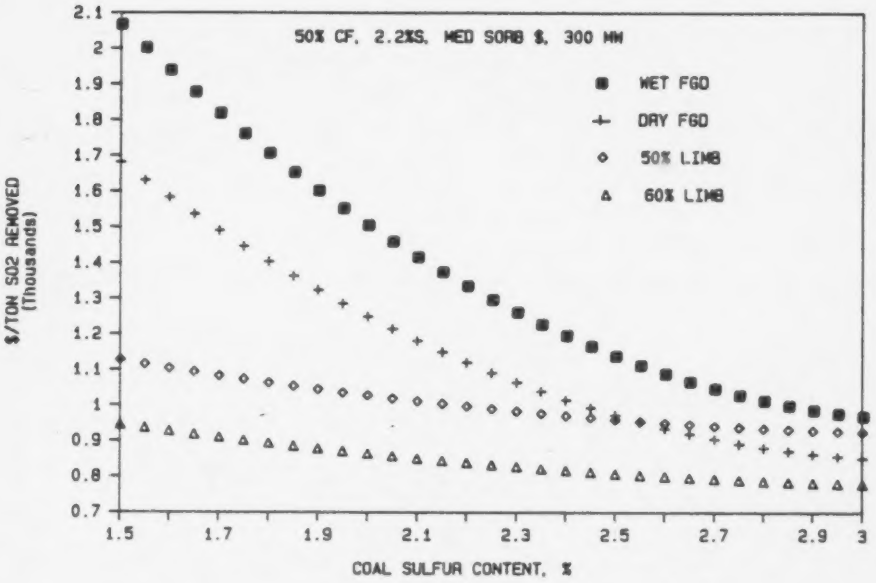


Figure 1. Unit cost vs. coal sulfur content

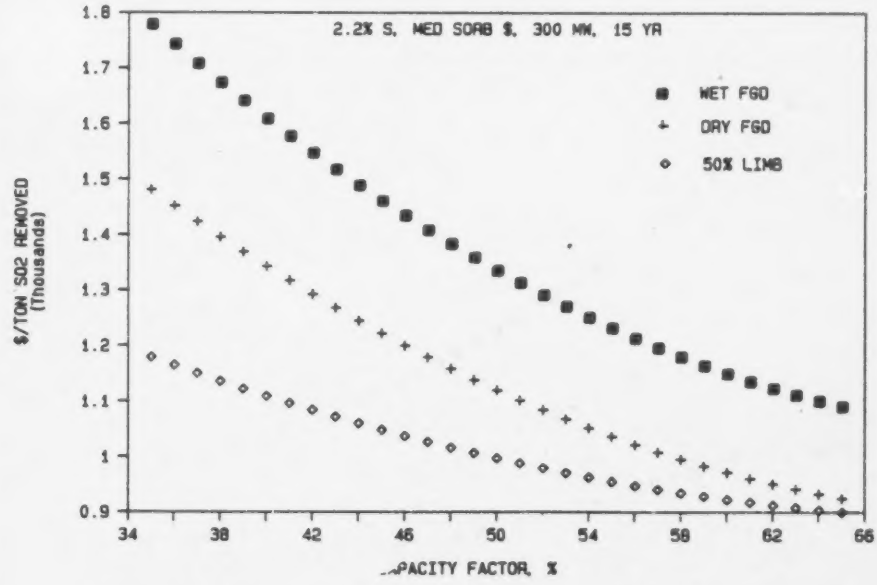


Figure 2. Unit cost vs. capacity factor.

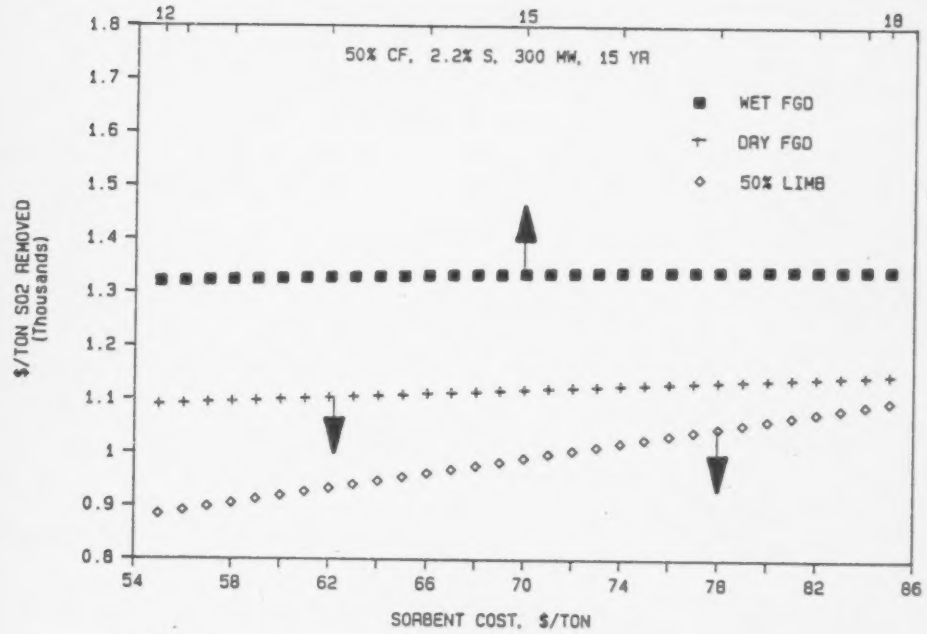


Figure 3. Unit cost vs. sorbent cost.

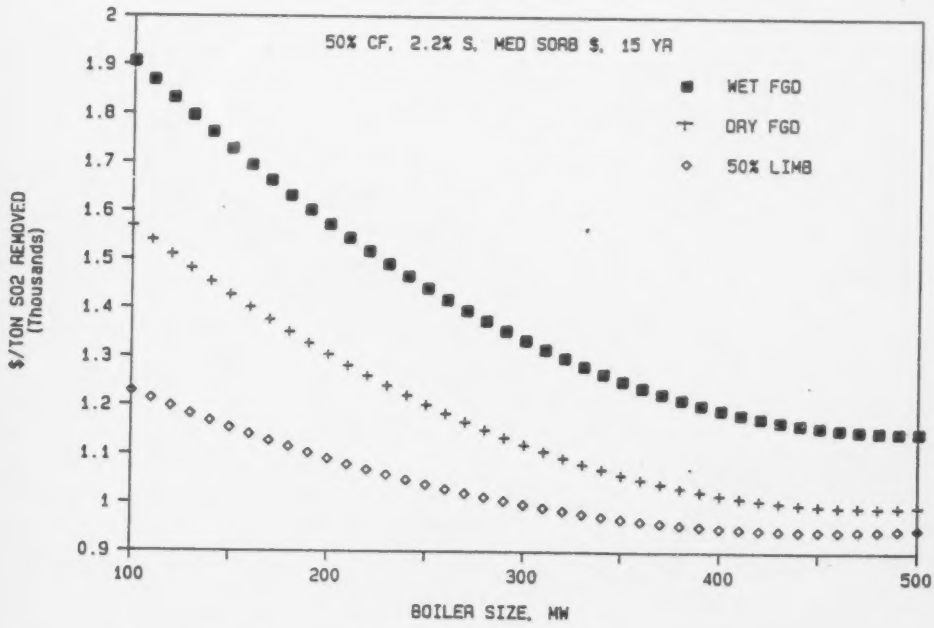


Figure 4. Unit cost vs. boiler size.

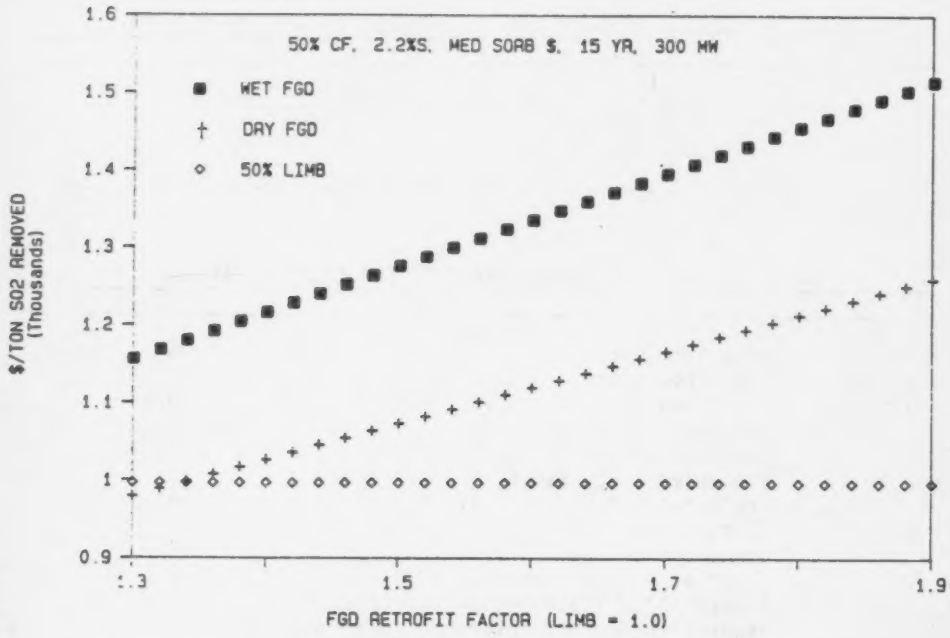


Figure 5. Unit cost vs. retrofit factor.

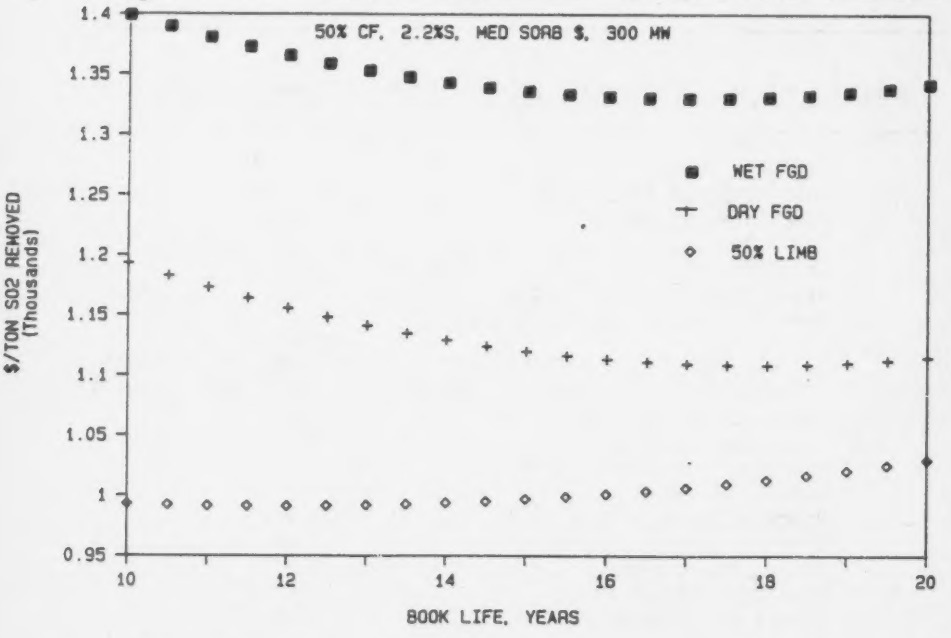


Figure 6. Unit cost vs. book life.

TABLE 1. NUMBER OF OPERATING ABSORBERS FOR WET AND DRY FGD

MWe	100	300	500
Wet FGD	1	3	4
Dry FGD	1	2	3

TABLE 2. MAJOR ECONOMIC PREMISES FOR COST OF CAPITAL

Book life, years	15
Tax life, years	5
Inflation rate, %/yr	6
Debt/equity ratio	50/50
Debt cost, %/yr	11.0
Preferred stock ratio, %	15
Preferred stock cost, %/yr	11.5
Common stock ratio, %	35
Common stock cost, %/yr	15.3
Weighted cost of capital, %/yr	12.5
Federal plus state income tax rate, %	50
Property taxes and insurance, %/yr	2
Investment tax credit, %	8
Levelized carrying charge rate, %	16.5

TABLE 3. MAJOR ECONOMIC PREMISES FOR OPERATING AND MAINTENANCE COSTS

Base for costs	Dec. 1985
Unit capacity factors,%	35, 50, and 65
Book life, years	15
Tax life, years	5
Levelizing factor	1.452
Waste disposal cost, $/ton	7.66
Operating labor, manhours/year	
LIMB	17520
Wet FGD	49960 to 64100 (incl. 24960 for landfill)
Dry FGD	38200 to 53070 (incl. 24960 for landfill)
Labor rate, $/hr	21
Limestone cost, $/ton	12, 15, and 18
Hydrated lime cost, $/ton	55, 71, and 85
Water, $/1000 gal.	
Process steam, $/1000 lb	4.46
In-plant power, mills/kWh	54
Diesel fuel, $/gal.	1.00
Coal cost, $/$10^6$ Btu	1.72
Land cost, $/acre	6900

TABLE 4. SUMMARY OF RESULTS OF COST AND SENSITIVITY STUDY

Sensitivity Study Parameters	$/Ton SO_2 Removal: Wet FGD	Dry FGD	LIMB
Base Case			
2.2% S Coal, 50% Capacity Factor, $71/$15 Sorbent Cost/Ton, 300 MW Boiler Size, 1.6 Retrofit Factor for FGD, 15 Yr Book Life, % Removal = NSPS* for FGD, 50% for LIMB	1337	1120	997
Variation from Base Case			
1.5% S	2069	1681	1127
3.0% S	972	852	927
35% Capacity Factor	1781	1481	1179
65% Capacity Factor	1092	925	900
Sorbent Cost, $/Ton 55/12 (Lime/LS)	1322	1090	884
Sorbent Cost, $/Ton 85/18 (Lime/LS)	1345	1147	1097
100 MW	1910	1569	1229
500 MW	1151	995	948
1.3 Retrofit Factor	1157	980	997
1.9 Retrofit Factor	1516	1260	997
10 Year Book Life	1400	1193	993
20 Year Book Life	1343	1115	1030
LIMB 60% Removal, 2.2% S Coal	1337	1120	839
1.5% S Coal	2069	1681	947
3.0% S Coal	972	852	780

* NSPS for 1.5% S Coal = 76.2% Removal
2.2% S Coal = 83.8% Removal
3.0% S Coal = 88.1% Removal

TABLE 5. COMPARISON OF COST COMPONENTS FOR FGD AND LIMB

Basis: 300 MWe, 50% Capacity Factor, Intermediate Sorbent Cost, 1.6 Retrofit Factor for FGD, 2.2% Sulfur Coal, 15-year Book Life

	Wet FGD	Dry FGD	LIMB
Total Capital Req'mt., $/kW	261	247	70
Levelized Capital Charges, $/ton SO_2 (% of Total)	648 (48)	614 (55)	291 (29)
Levelized Operating & Maint., $/ton SO_2 (% of Total)	689 (52)	506 (45)	706 (71)
Total Lev. Ann. Rev. Req'mt., $/ton SO_2	1337	1120	997
Levelized Capital Charges, mills/kWh (% of Total)	9.84 (48)	9.32 (55)	2.64 (29)
Levelized Operating & Maint., mills/kWh (% of Total)	10.46 (52)	7.69 (45)	6.38 (71)
Total Lev. Ann. Rev. Req'mt., mills/kWh	20.30	17.01	9.02
SO_2 Removal, %	83.8	83.8	50
SO_2 Removed, tons/yr	19942	19942	11881
Energy Produced, GWh/yr	1314	1314	1314

Question: The estimated cost of compliance with various acid rain control bills hinges on the assessment of the likely low sulfur coal premium that will develop as a result of passage of legislation. Please provide this subcommittee with your best estimates of the likely size of such a premium in 1995 and 2000, given passage of S. 316 and compare several outside estimates of low sulfur premiums with those prepared for EPA. In particular, we would like an examination of the work of DRI, EVA and TBS on this issue compared to ICF estimates.

Answer: It is imposible to provide a simple response to the request for the size of future coal sulfur premiums. This will depend heavily on the site at which the coal is burned, the source and cost of coal used prior to implementation of the provisions of S.316 and the quality of coal selected for that unit as part of the overall control strategy. In other words, for each major State or substate demand region, the ICF model would provide a menu of available coals of varying sulfur content and cost. These delivered price projections under varying enviromental regulations for specific States or plants provide the "price premiums" accross a wide range of coals. The model would select from these lists the combination of coals and technology which would achieve the required reductions at least cost. We have not yet carried out any detailed analysis of the coal sulfur premiums which might result from S.316. In an earlier analysis of last year's H.R. 4567, ICF calculated that the cost of switching from high to low sulfur coal ranged from $100 to $900 per ton of SO_2 removed. The large variation was due to the differences in delivered coal prices by region, and whether or not coal handling facilities and plant particulate control equipment would need to be upgraded for a given site.

Some illustrative coal prices from the ICF model are as follows:

Year 2000 Projected Prices
($/MMBtu in 1987 Dollars)

Cases	Delivered to Indiana	Delivered to North and South Carolina
1. EPA 1985 Base Case		
5 lb. coal	1.84	2.29
1.2 lb. coal	2.46	2.45
2. S-316 From 1985 Base Case		
5 lb. coal	1.74	2.21
1.2 lb. coal	2.65	2.61
3. 1987 Interim Base Case		
5 lb. coal	1.44	1.60
1.2 lb. coal	1.76	1.72

4. S-316 From Interim Base		
5 lb. coal	1.24	1.43
1.2 lb. coal	1.89	1.83

We do not have available the detailed data from DRI, EVA, or TBS necessary to compare ICF's premiums with those calculated by those groups. We believe that EVA and TBS generally project higher premiums than does ICF, resulting in higher total control costs and a larger portion of the control program being achieved through scrubbers. However, we do not have a clear understanding of the differences in data or assumptions which cause this difference. It should also be pointed out that ICF has recently produced a revised interim base case projection for EPA which includes revisions to coal reserves data, assumptions about future productivity in the mining industry and assumptions about future rail transportation costs. As a result of these factors the projected coal sulfur premiums in the interim base case and in a control program modelled against it are lower than is the case in the current base case. A copy of an ICF memorandum describing the Interim Base Case is attached for your information.

(THE INFORMATION FOLLOWS)

ICF INCORPORATED International Square, 1850 K Street, Northwest, Washington, D. C. 20006 (202) 862 - 1100

March 10, 1987

MEMORANDUM

TO: Paul Schwengels, EPA

FROM: Bruce Braine, ICF
Richard Stuebi

SUBJECT: Interim EPA Base Case Forecasts

This memorandum presents summary national and regional forecasts from the recently completed 1987 interim EPA Base Case. This base case was developed for use in the CEUM/AUSM comparison effort and for use in regulatory analyses prior to the development of the final EPA base.

This memorandum is divided into two sections. The first section briefly discusses the emission, generation, and coal production forecasts and trends. The second section notes the major differences between this interim 1987 EPA base and the 1985 EPA Base Case. Attachment A provides forecasts of utility SO2 and NOx emissions, emission rates, generation, fuel consumption, and coal production, while Attachment B presents detailed input specifications and assumptions for the preliminary 1987 EPA Base Case as compared to the previous 1985 EPA base.

INTERIM 1987 BASE CASE FORECASTS

Summary forecasts from the Interim Base Case are presented in Table 1. The findings indicate include:

- Sulfur dioxide emissions rise steadily throughout the forecast period, from 1985 "actual" levels of 16.3 million tons to an estimated 21.7 million tons by 2010. Most of this growth in the near term (1985-1995) is forecast to come from increased utilization of existing (pre-1986) coal fired plants and greater use of oil relative to gas at oil/gas steam units as gas prices firm relative to oil prices. After 2000, most growth will come from the addition of new coal fired powerplants.

- Utility sulfur dioxide emissions are forecast to increase by 2.3 million tons between 1985 and 1995, from 16.3 million tons to 18.6 million tons. This reflects:

  - A 1.5 million ton increase in emissions (from 15.7 million tons to 17.2 million tons) at existing (pre-1986) coal powerplants.

  - A 0.5 million ton increase in emissions (from 0.6 million tons to 1.1 million tons) from oil/gas units.

  - The addition of new coal-fired powerplants since 1985, which accounts for an estimated 0.2 million tons of sulfur dioxide by 1995.

- Higher emissions from existing coal plants in the near-term (1985-1995) are due to several factors. At present, a number of coal powerplants are being less-than-fully utilized primarily due to (1) excess coal capacity, associated with a large number of new

coal-fired plants brought on-line during the 1980-85 period when there was relatively little electricity sales growth, (2) a large amount of new nuclear capacity recently brought on-line, which has also resulted in existing coal plants being utilized loss, particularly in states such as Illinois, the Carolinas, and Pennsylvania. As electricity sales increase and the number of new nuclear and coal plants added begins to decline over this time frame, the coal capacity which is now relatively idle should be utilized more intensively.

- Higher emissions from oil/gas steam units will result from increased use of oil relative to gas as the gas "bubble" disappears and gas prices firm relative to oil prices.

- After 1995, sulfur dioxide emissions are expected to increase by an additional 3.1 million tons by 2010 (from 18.6 million tons to 21.7 million tons). This reflects:

    - An additional 1.5 million ton increase (from 17.2 million tons to 18.7 million tons) from existing coal powerplants by 2000 as existing plants are utilized more fully.

    - An increase of 1.8 million tons associated with the addition of new coal-fired units. Most of this increase occurs after 2000 when most of the new coal plants are built.

    - An 0.2 million ton decline (from 1.1 million tons to 0.9 million tons) at oil/gas plants as oil/steam plants are retired.

- New coal sulfur dioxide emissions increase dramatically in the long-term (1995-2010) because 223 additional gigawatts of new coal capacity is forecast to be completed over this time period. Most new coal capacity is forecast to be built after 2000 (198 gigawatts) and reflects:

    - Coal capacity built to meet higher electricity demands (142 gigawatts).

    - Capacity built to replace retiring nuclear, coal, and oil/gas steam plants (42 gigawatts).

    - Capacity built to replace oil/gas steam capacity which, as oil prices rise, becomes increasingly expensive to operate (14 gigawatts).

  As a result of these coal builds, coal generation accounts for slightly more than half of all energy generated in 1995, but represents two-thirds of total generation in 2010. However, because new scrubbed coal capacity continues to increase its share of total coal capacity, the average coal sulfur dioxide emission rate is forecast to fall steadily, particularly as the older SIP units begin to retire with more frequency. Thus, coal SO2 emissions do not increase as rapidly as coal fired generation.

- Utility nitrogen oxide emissions are also forecast to rise significantly from 1980 to 2010. Moreover, total

utility nitrogen oxide emissions are forecast to rise more quickly than sulfur dioxide emissions, especially between 2000 and 2010. While the average nitrogen oxide emission rate does decrease over time, it falls less significantly than the average sulfur dioxide emissions rate. This is because average NOx rates at existing units are only somewhat higher than new plant NOx limits, but SO2 rates at existing units are substantially higher than new plant SO2 rates. Therefore, nitrogen oxide emissions rise roughly in parallel with increases in coal and oil/gas generation, increasing from 1980 historical levels of 6.6 million tons to 11.3 million tons in 2010.

- Electricity generation is expected to grow at roughly the same rate as electricity sales. Both grow at roughly 2.2 percent annually through 1995, and 2.0 percent per year thereafter. Nuclear generation accounts for most of this growth through 1990, increasing by 60 percent (from 380 to 610 billion kilowatt-hours) due to the many new nuclear units assumed to be brought on-line, as well as several others (notably, the TVA nuclear units) that are expected to be restarted. Oil/gas generation declines significantly as oil and gas prices rise from low levels in 1986, more nuclear plants are brought on-line, and excess coal capacity is used to displace more expensive oil/gas generation. As mentioned previously, coal generation rises steadily through 2010, as underutilized existing capacity is utilized more and new coal capacity is added. After 2000, coal generation jumps significantly (by about 57 percent) by 2010 to compensate for nuclear and oil/gas retirements and to meet higher sales demands.

- National coal production is forecast to increase in line with the growth in coal-fired generation, reflecting the high percentage of coal shipments that go to the utility sector (about 79 percent in 1985). Regional coal production growth varies considerably. For example, in two key producing areas:

  - Demand for coals from higher sulfur producing regions, such as the Midwest, is expected to remain approximately flat until 2000. This reflects the combination of several factors: (1) shifts away from Midwestern coals associated with tighter emission limits in Wisconsin and more economic use of Western coals in states such as Missouri, (2) a large amount of nuclear capacity built in regions using predominantly Midwestern coals (e.g., Illinois), and (3) some increases in demand in growing markets which burn Midwest coals such as Indiana and Kentucky. Until new scrubbed plants get built, mainly after 2000, there is relatively little growth in demand expected for these coals.

  - Coals from the West are forecast to experience a very high rate of demand growth, reflecting primarily (1) penetration into Midwestern markets such as Wisconsin and Missouri, and (2) growth in new coal capacity which is concentrated in the Western states and which will therefore be supplied by western coals.

TABLE 1

NATIONAL SUMMARY BASE CASE FORECASTS

	1980	1985	1990	1995	2000	2010
SO2 Emissions (millions of tons)						
Coal						
Existing[1]	16.02	15.69	16.78	17.23	17.87	18.74
New	-	-	0.10	0.20	0.43	2.01
Total	16.02	15.69	16.88	17.43	18.30	20.26
Oil/Gas	1.36	0.58	0.89	1.14	1.32	0.93
Total	17.38	16.27	17.77	18.57	19.62	21.69
NOx Emissions (millions of tons)						
Coal						
Existing[1]	5.44	NA	6.53	6.82	7.14	7.26
New	-	NA	0.16	0.26	0.65	3.52
Total	5.44	NA	6.70	7.08	7.79	10.77
Oil/Gas	1.18	NA	0.47	0.77	0.84	0.52
Total	6.62	NA	7.16	7.85	8.63	11.29
Utility Electricity Generation (trillions of kwh)						
Coal	1.16	1.40	1.50	1.58	1.78	2.79
Oil/Gas	0.59	0.39	0.22	0.38	0.44	0.29
Nuclear	0.25	0.38	0.61	0.62	0.62	0.46
Hydro & Other	0.28	0.30	0.41	0.48	0.53	0.58
Total	2.28	2.47	2.74	3.06	3.37	4.12
Coal Production (millions of tons)						
Northern Appalachia	185.1	161.5	174.4	179.9	187.8	258.0
Central Appalachia	232.8	244.8	244.3	282.4	330.4	406.9
Southern Appalachia	26.4	25.6	25.5	22.5	24.6	35.8
Midwest	134.4	133.3	130.8	124.8	142.6	175.0
West	251.0	315.9	389.6	428.3	479.2	777.2
Total	829.7	881.1	964.6	1037.9	1164.6	1652.9

[1] "Existing" capacity defined as coal capacity which came on line prior to 12/31/85.

NA: Not Available.

TABLE 2

COMPARISON OF INTERIM 1987 BASE FORECASTS WITH 1985 BASE FORECASTS - 1995

	Interim 1987 Base	1985 Base	Difference
SO2 Emissions (millions of tons)	18.6	19.7	-1.1
NOx Emissions (millions of tons)	7.8	8.4	-0.6
SO2 Emissions Rate (lbs. SO2 per MMBtu)	1.79	1.74	+0.05
NOx Emissions Rate (lbs. SO2 per MMBtu)	0.76	0.75	+0.01
Utility Electricity Generation (trillions of kwh)			
Coal	1.58	1.71	-0.13
Oil/Gas	0.38	0.43	-0.05
Nuclear	0.62	0.64	-0.02
Hydro & Other	0.48	0.38	+0.10
Total	3.06	3.16	-0.10
Coal Production (millions of Tons)			
Northern Appalachia	179.9	197.5	-17.6
Central Appalachia	282.4	306.6	-24.2
Southern Appalachia	22.5	25.1	-2.6
Midwest	124.8	150.5	-25.7
West	428.3	516.0	-87.7
Total	1037.9	1195.7	-157.8

COMPARISON OF THE INTERIM 1987 BASE WITH THE 1985 BASE

Table 2 compares the key 1995 forecasts from the interim 1987 EPA Base Case analysis with those developed for the previous 1985 EPA Base Case. Table 3 on pages 8 and 9 presents a comparison of major input assumptions for 1995 used in both base cases.

Some of the key forecast differences are noted below:

- Sulfur dioxide emissions are lower in the more recent Base Case. This is primarily due to lower coal-fired generation (mostly because total generation and sales are lower and contributions from cogeneration and renewable sources are higher).

- Nitrogen oxide emissions are also forecast to be lower in the new case, largely as a result of lower fossil-fuel generation.

- Generation is lower due to lower assumed growth in electricity sales (2.2 percent per year through 1995 compared to 2.5 percent in the previous EPA base). Both coal and oil/gas generation fall proportionally more than total generation requirements because nuclear is relatively unchanged and cogeneration and renewables (such as municipal waste, small hydro, and geothermal) have increased significantly from the previous EPA base.

- Coal production is lower as a result of lower coal fired generation. Midwest and Western coals are reduced the most because these coals are generally burned in newer plants, and fewer new plants are built by 1995.

TABLE 3

COMPARISON OF MAJOR BASE CASE ASSUMPTIONS - 1995

	Interim 1987 Base	1985 Base	Comments
U.S. Electricity Sales (trillions of kwh)	2.86	2.97	Lower sales results a 2.2 percent per year growth rate vs. a 2.5 percent in the previous base.
Imports of Canadian Electricity (billions of kwh)	64	90	Lower imports reflect recent ICF assessments of transmission capabilities and available capacity in Canada.
World Oil Price (early 1986 $/bbl)	23.60	35.10	Lower oil prices reflect the large decline in oil prices which occurred since the development of the 1985 Base Case.
Coal Reconversions (Gw) 1986-1995	1.2	6.4	Fewer reconversions reflect recent cancellations largely associated with lower oil prices.
Cogeneration & Other Renewables (billions of kwh)	185	90	More cogeneration and other Q.Fs based on continuing ICF assessments of the markets.
Non-Utility Coal Demand (millions of tons)	204	306	Lower non-utility demand largely reflects lower forecasted industrial demand primarily due to lower oil and gas prices reducing the number of new coal boilers and coal conversions.
Emission Regulations (lbs. SO2/MMBtu)			
Wisconsin coal plants:			Tighter limits in Wisconsin reflect finalization of SIP regulations. Cumberland limit changed due to information obtained from TVA.
Alma #1-5	1/	4.00	
Columbia #1	2.12	4.00	
Dewey #1-2	1/	4.78	
Genoa #6	1/	4.00	
Oak Creek #1-8	3.20	4.00	
Rock River #1-2	3.20	4.00	
Burger #1-5 (Ohio Edison)	9.02	No Limit	
Cumberland #1-2 (TVA)	5.00	4.20	

1/ These units burn both bituminous and subbituminous coals. The bituminous is limited to 3.86 lbs. SO2/MMBtu, while the subbituminous is limited to 1.66 lbs. SO2/MMBtu.

ATTACHMENT A

FORECASTS FROM THE INTERIM 1987 EPA BASE CASE

1990-2010

TABLE A-1

UTILITY SULFUR DIOXIDE EMISSION FORECASTS

			EPA Base Case			
	1980	1985	1990	1995	2000	2010
Utility SO2 Emissions (millions of tons)						
31-Eastern States						
Coal						
Existing[1]	14.92	14.21	14.88	15.26	15.85	16.76
New - NSPS	-	-	0.05	0.13	0.20	0.20
New - ANSPS	-	-	0.01	0.01	0.14	1.27
Total	14.92	14.21	14.94	15.41	16.20	18.23
Oil/Gas	1.27	0.57	0.77	1.02	1.19	0.82
Total 31-Eastern States	16.19	14.78	15.71	16.43	17.39	19.05
17-Western States						
Coal						
Existing[1]	1.10	1.48	1.92	2.00	2.05	2.01
New - NSPS	-	-	0.02	0.02	0.02	0.02
New - ANSPS	-	-	0.02	0.02	0.06	0.53
Total	1.10	1.48	1.96	2.05	2.13	2.56
Oil/Gas	0.09	0.01	0.12	0.12	0.13	0.11
Total 17-Eastern States	1.19	1.49	2.08	2.17	2.26	2.67
Total U.S.						
Coal						
Existing[1]	16.02	15.69	16.80	17.26	17.90	18.77
New - NSPS	-	-	0.07	0.16	0.22	0.22
New - ANSPS	-	-	0.03	0.04	0.21	1.79
Total	16.02	15.69	16.90	17.46	18.33	20.79
Oil/Gas	1.36	0.58	0.89	1.14	1.32	0.93
Total U.S.	17.38	16.27	17.79	18.60	19.65	21.72

[1] Designated existing capacity as of 12/31/85. Represents emissions from all existing coal capacity, including emissions from NSPS and ANSPS units.

TABLE A-2

UTILITY SULFUR DIOXIDE EMISSION RATE FORECASTS

			EPA Base Case			
	1980	1985	1990	1995	2000	2010
Utility SO2 Emission Rates (lbs. SO2/MMBtu)						
31-Eastern States						
Coal						
Existing[1]	3.13	2.57	2.62	2.56	2.52	2.60
New - NSPS	-	-	0.99	0.85	0.88	0.95
New - ANSPS	-	-	0.35	0.31	0.33	0.35
Total	3.13	2.57	2.60	2.50	2.33	1.77
Oil/Gas	0.85	0.62	1.50	0.95	0.96	0.86
Total 31-Eastern States	2.58	2.25	2.51	2.27	2.12	1.69
17-Western States						
Coal						
Existing[1]	0.85	0.83	0.97	0.98	0.98	0.99
New - NSPS	-	-	0.46	0.46	0.46	0.46
New - ANSPS	-	-	0.17	0.20	0.19	0.25
Total	0.85	0.83	0.92	0.92	0.86	0.61
Oil/Gas	0.06	0.01	0.20	0.13	0.13	0.18
Total 17-Eastern States	0.42	0.53	0.76	0.69	0.65	0.56
Total U.S.						
Coal						
Existing[1]	2.64	2.15	2.19	2.15	2.14	2.21
New - NSPS	-	-	0.72	0.76	0.81	0.86
New - ANSPS	-	-	0.21	0.23	0.27	0.31
Total	2.64	2.15	2.14	2.08	1.95	1.44
Oil/Gas	0.45	0.28	0.79	0.58	0.58	0.60
Total U.S.	1.90	1.73	1.97	1.79	1.68	1.35

[1] Designated existing capacity as of 12/31/85. Represents emissions from all existing coal capacity, including emissions from NSPS and ANSPS units.

TABLE A-3

UTILITY NITROGEN OXIDE EMISSION FORECASTS [1]

	1980	EPA Base Case 1990	1995	2000	2010
Utility NOx Emissions (millions of tons)					
31-Eastern States					
Coal					
Existing[2]	4.55	5.12	5.36	5.66	5.81
New - NSPS	-	0.04	0.11	0.16	0.15
New - ANSPS	-	0.02	0.03	0.26	2.10
Total	4.55	5.18	5.50	6.08	8.06
Oil/Gas	0.57	0.19	0.42	0.43	0.29
Total 31-Eastern States	5.12	5.37	5.91	6.51	8.36
17-Western States					
Coal					
Existing[2]	0.89	1.41	1.46	1.49	1.45
New - NSPS	-	0.04	0.04	0.04	0.04
New - ANSPS	-	0.07	0.08	0.19	1.23
Total	0.89	1.52	1.58	1.71	2.71
Oil/Gas	0.61	0.27	0.36	0.41	0.22
Total 17-Eastern States	1.50	1.79	1.93	2.12	2.93
Total U.S.					
Coal					
Existing[2]	5.44	6.53	6.82	7.14	7.26
New - NSPS	-	0.07	0.15	0.20	0.19
New - ANSPS	-	0.09	0.11	0.45	3.33
Total	5.44	6.70	7.08	7.79	10.77
Oil/Gas	1.18	0.47	0.77	0.84	0.52
Total U.S.	6.62	7.16	7.85	8.63	11.29

[1] Data for 1985 not available.

[2] Designated existing capacity as of 12/31/85. Represents emissions from all existing coal capacity, including emissions from NSPS and ANSPS units.

TABLE A-4

UTILITY NITROGEN OXIDE EMISSION RATE FORECASTS

		EPA Base Case			
	1980	1990	1995	2000	2010
Utility NOx Emission Rates (lbs. NOx/MMBtu)					
31-Eastern States					
Coal					
Existing[2]	0.96	0.90	0.90	0.90	0.90
New - NSPS	-	0.75	0.71	0.71	0.71
New - ANSPS	-	0.60	0.60	0.60	0.58
Total	0.96	0.90	0.89	0.87	0.78
Oil/Gas	0.38	0.38	0.39	0.34	0.31
Total 31-Eastern States	0.82	0.86	0.82	0.79	0.74
17-Western States					
Coal					
Existing[2]	0.69	0.71	0.71	0.71	0.71
New - NSPS	-	0.75	0.75	0.75	0.75
New - ANSPS	-	0.64	0.66	0.57	0.58
Total	0.69	0.71	0.71	0.69	0.65
Oil/Gas	0.40	0.45	0.40	0.39	0.38
Total 17-Eastern States	0.53	0.65	0.62	0.61	0.61
Total U.S.					
Coal					
Existing[2]	0.90	0.85	0.85	0.85	0.86
New - NSPS	-	0.75	0.72	0.72	0.72
New - ANSPS	-	0.63	0.64	0.59	0.58
Total	0.90	0.85	0.84	0.83	0.74
Oil/Gas	0.39	0.42	0.39	0.37	0.33
Total U.S.	0.73	0.79	0.76	0.74	0.70

[1] Data for 1985 not available.

[2] Designated existing capacity as of 12/31/85. Represents emissions from all existing coal capacity, including emissions from NSPS and ANSPS units.

TABLE A-5

TOTAL UTILITY POWERPLANT CAPACITY
(Gigawatts)

			EPA Base Case			
	1980	1985	1990	1995	2000	2010
Coal						
Existing[1]	245.7	286.7	287.8	287.8	287.6	282.7
New - NSPS	-	-	3.4	7.0	9.4	9.4
New - ANSPS	-	-	5.0	5.9	28.2	225.9
Total	245.7	286.7	296.1	300.7	325.2	518.0
Oil/Gas Steam	166.4[2]	205.2[2]	149.0	149.0	148.9	139.7
Oil/Gas Turbine & Combined Cycle			54.4	55.0	64.1	75.5
Nuclear	56.5	75.7	103.2	106.4	106.2	78.2
Hydro & Other	76.3	83.6	108.3	116.6	124.5	132.8
Total	542.8	651.2	711.0	727.6	768.9	944.2

[1] Designated existing capacity as of 12/31/85. Represents total existing coal capacity, including NSPS and ANSPS units. Existing coal capacity increases between 1985 and 1990 due to reconversions of oil capacity to coal.

[2] Represents total oil/gas capacity, including oil/gas turbines and combined cycle capacity.

TABLE A-6

TOTAL UTILITY ELECTRICITY GENERATION
(Trillion Kwh)

			EPA Base Case			
	1980	1985	1990	1995	2000	2010
Coal						
Existing[1]	1.16	1.40	1.45	1.51	1.57	1.59
New - NSPS	-	-	0.02	0.04	0.05	0.05
New - ANSPS	-	-	0.03	0.03	0.15	1.14
Total	1.16	1.40	1.50	1.58	1.78	2.79
Oil/Gas Steam	0.59[2]	0.39[2]	0.19	0.34	0.38	0.21
Oil/Gas Turbine & Combined Cycle			0.03	0.04	0.06	0.08
Nuclear	0.25	0.38	0.61	0.62	0.62	0.46
Hydro & Other	0.28	0.30	0.41	0.48	0.53	0.58
Total	2.28	2.47	2.74	3.06	3.37	4.12

[1] Designated existing capacity as of 12/31/85. Represents total existing coal capacity generation, including NSPS and ANSPS unit generation.

[2] Represents total oil/gas capacity generation, including oil/gas turbine and combined cycle generation.

TABLE A-7

UTILITY FUEL CONSUMPTION FORECASTS
(Quads)

Utility Fuel Consumption	1980	1985	EPA Base Case 1990	1995	2000	2010
31-Eastern States						
Coal						
Low Sulfur	0.87	1.89	2.13	2.63	3.35	6.82
Low-Medium Sulfur	1.61	1.56	2.03	2.08	2.65	3.82
High-Medium Sulfur	3.18	3.66	3.51	3.82	3.78	4.86
High Sulfur	3.86	3.90	3.85	3.81	4.11	5.08
Total	9.53	11.01	11.51	12.34	13.90	20.57
Oil	1.99	0.93	1.03	1.54	1.98	1.79
Gas	1.01	0.92	0.18	0.79	0.71	0.44
17-Western States						
Coal						
Low Sulfur	1.41	1.61	2.36	2.42	2.71	5.56
Low-Medium Sulfur	0.43	0.94	0.80	0.85	0.95	1.55
High-Medium Sulfur	0.74	0.96	1.06	1.11	1.22	1.21
High Sulfur	0.01	0.07	0.06	0.07	0.06	0.08
Total	2.59	3.58	4.28	4.44	4.93	8.40
Oil	0.48	0.06	0.23	0.24	0.28	0.34
Gas	2.58	2.28	1.07	1.64	1.90	0.99
Total U.S.						
Coal						
Low Sulfur	2.28	3.50	4.50	5.06	6.06	12.38
Low-Medium Sulfur	2.04	2.49	2.83	2.93	3.60	5.37
High-Medium Sulfur	3.92	4.62	4.57	4.94	4.99	6.06
High Sulfur	3.87	3.97	3.91	3.87	4.18	5.16
Total	12.12	14.58	15.80	16.79	18.84	28.96
Oil	2.47	0.99	1.26	1.79	2.26	2.13
Gas	3.59	3.20	1.25	2.43	2.61	1.44

TABLE A-8

COAL PRODUCTION AND SHIPMENT FORECASTS
(Millions of Tons)

	1980	1985	EPA Base Case 1990	1995	2000	2010
Coal Production						
Northern Appalachia	185.1	165.5	174.4	179.9	187.8	258.0
Central Appalachia	232.8	244.8	244.3	282.4	330.4	406.9
Southern Appalachia	26.4	25.6	25.5	22.5	24.6	35.8
Midwest	134.4	133.3	130.8	124.8	142.6	175.0
West	251.0	315.9	389.6	428.3	479.2	777.2
Total U.S.	829.7	881.1	964.6	1037.9	1164.6	1652.9
Coal Transportation						
Western Coal Shipped East	36.7	32.2	44.0	54.7	69.6	183.3
Eastern Coal Shipped West	25.0	30.0	24.9	30.6	38.3	42.3
Coal Production by State						
Northern Appalachia						
Pennsylvania	93.1	65.3	70.2	74.2	86.7	133.7
Ohio	39.4	35.7	38.2	33.5	32.5	37.2
Maryland	3.8	2.8	3.6	3.0	2.5	1.9
No. W. Virginia	48.8	56.9	62.4	69.1	66.1	85.1
Total	185.1	161.5	174.4	179.9	187.8	258.0
Central Appalachia						
So. W. Virginia	72.7	70.7	83.2	92.6	134.0	188.0
Virginia	41.0	43.9	45.9	51.2	68.7	69.6
East Kentucky	109.2	121.7	108.7	130.7	114.0	126.5
Tennessee	9.9	7.5	6.5	7.9	13.8	22.9
Total	232.8	244.8	244.3	282.4	330.4	406.9
Midwest						
Illinois	62.5	61.1	58.4	58.1	82.0	100.5
Indiana	30.9	34.0	31.4	25.9	21.4	27.4
West Kentucky	41.0	38.2	40.9	40.8	39.3	47.2
Total	134.4	133.3	130.8	124.8	142.6	175.0

TABLE A-9

UTILITY SO2 EMISSIONS BY REGION
(Thousands of Tons)

Region	1980	1985	EPA Base Case 1990	1995	2000	2010
Maine/Vt/NH	97	86	55	70	70	81
Mass/Conn/Rhode Island	292	288	270	289	336	376
New York	479	420	369	481	518	543
Pennsylvania	1422	1320	1152	1275	1186	1232
New Jersey	103	97	96	130	127	191
Maryland/Delaware	277	281	311	378	396	409
Virginia	157	131	195	240	293	341
West Virginia	984	969	1002	961	1007	1037
N. & S. Carolina	655	500	660	689	728	968
Georgia	704	976	864	874	946	1021
Florida	692	501	898	937	968	910
Ohio	2185	2193	2710	2572	2677	2849
Michigan	608	401	429	449	477	516
Illinois	1110	1054	831	955	1096	1407
Indiana	1672	1498	1668	1710	1782	2007
Wisconsin	488	367	333	273	267	327
Kentucky	1029	745	869	893	935	941
Tennessee	910	802	875	856	922	1056
Alabama	535	563	444	512	565	595
Mississippi	122	113	140	146	153	168
Minnesota	160	124	145	169	218	216
Iowa	236	219	213	302	368	438
Missouri	1227	997	973	1058	1118	1196
Arkansas	27	69	123	125	151	131
Louisiana	21	67	88	86	84	89
Total 31-Eastern States	16,193	14,781	15,712	16,431	17,387	19,047
N. & S. Dakota	109	156	219	227	239	302
Kansas/Nebraska	149	211	304	340	351	365
Oklahoma	45	80	218	209	225	225
Texas	295	430	651	695	710	890
Montana	23	22	45	45	48	64
Wyoming	128	135	63	62	70	68
Idaho	-	-	-	-	-	-
Colorado	71	84	127	130	137	145
New Mexico	78	114	56	56	56	57
Utah	25	27	67	69	70	77
Arizona	84	104	124	126	130	138
Nevada	38	35	75	76	79	78
Washington/Oregon	72	88	132	130	149	237
California	70	3	-	-	-	20
Total 17-Western States	1,187	1,489	2,081	2,166	2,263	2,668
Total U.S.	17,380	16,270	17,793	18,597	19,650	21,715

Note: Totals may not add due to independent rounding.

TABLE A-10

UTILITY NOX EMISSIONS BY REGION [1]
(Thousands of Tons)

Region	1980	EPA Base Case 1990	1995	2000	2010
Maine/Vt/NH	32	25	32	31	49
Mass/Conn/Rhode Island	81	94	110	125	263
New York	146	127	173	221	376
Pennsylvania	417	370	420	384	393
New Jersey	81	53	90	100	202
Maryland/Delaware	91	116	134	150	227
Virginia	66	79	96	137	225
West Virginia	319	371	353	376	383
N. & S. Carolina	352	331	342	407	608
Georgia	235	234	249	268	343
Florida	242	306	328	395	462
Ohio	526	618	612	639	790
Michigan	262	292	303	333	436
Illinois	396	277	327	392	612
Indiana	411	451	515	530	566
Wisconsin	132	152	174	191	248
Kentucky	278	353	372	413	416
Tennessee	215	241	240	256	478
Alabama	188	173	196	234	253
Mississippi	57	52	53	56	105
Minnesota	98	112	130	155	136
Iowa	92	101	111	131	161
Missouri	270	287	321	334	384
Arkansas	26	80	81	91	89
Louisiana	98	79	150	158	153
Total 31-Eastern States	5,116	5,374	5,914	6,505	8,358
N. & S. Dakota	77	121	126	134	257
Kansas/Nebraska	140	194	218	219	215
Oklahoma	127	142	142	153	207
Texas	544	580	655	720	970
Montana	20	55	55	71	76
Wyoming	96	136	136	158	157
Idaho	-	-	-	-	-
Colorado	98	136	137	146	176
New Mexico	75	80	81	80	83
Utah	40	98	98	99	132
Arizona	89	113	117	127	168
Nevada	42	67	68	79	91
Washington/Oregon	29	45	46	76	247
California	132	23	57	61	154
Total 17-Western States	1,505	1,790	1,935	2,122	2,933
Total U.S.	6,621	7,164	7,849	8,628	11,291

Note: Totals may not add due to independent rounding.

[1] 1985 data not available.

ATTACHMENT B—MAJOR ASSUMPTIONS IN THE INTERIM 1987 EPA BASE CASE

COMPARISON OF KEY INPUT ASSUMPTIONS
FOR NEW AND PREVIOUS EPA BASE CASES

Critical Parameter	Interim 1987 EPA Base Case	1985 EPA Base Case	Comments
ELECTRIC UTILITY ENERGY DEMAND			
o World Oil Prices (early 1986 $/bbl)			
1990	17.80	30.10	New case reflects latest ICF analyses and assumes modest real increase in oil prices through 1990 and 3 percent per year growth in the long term.
1995	23.60	35.10	
2000	27.40	40.10	
2010	36.80	51.30	
o Electricity Growth (% Per Year)			
1986-1995	2.2	2.5	New case reflects EPA assumptions.
1995-2010	2.0	2.5	
o Total U.S. Nuclear Capacity (Gw)			
1990	103	105	Capacity in proposed case is now lower due to some nuclear postponements and cancellations and reflecting the TVA nuclear plant shut downs. In 2010, no new nuclear plants are built to replace retirements.
1995	106	108	
2000	106	109	
2010	79	120	
o Nuclear Capacity Factors (%)			
1985	61	60	
1990	67	64	
1995	67	67	
2000	67	67	
2010	67	67	
o Substitution of Coal for Oil and Gas (Gw) Reconversions			
1986-1995	1.2	6.4	The new case reflects most recent cancellations.
o Utility Capital Costs (1986 $/kw)			
Coal	900-1,010	990-1,175	Costs no longer include 10% real escalation. Powerplant costs shown here do not include charges for transmission hookup.
Nuclear	1,725-1,960	1,898-2,156	
Turbine	275- 315	302- 346	
Dry Scrubbers, New	99- 112	109- 123	
Wet Scrubbers, New	204- 245	224- 269	

COMPARISON OF KEY INPUT ASSUMPTIONS
FOR NEW AND PREVIOUS EPA BASE CASES
(Continued)

Critical Parameter	Interim 1987 EPA Base Case	1985 EPA Base Case	Comments
ELECTRIC UTILITY ENERGY DEMAND (Continued)			
o Powerplant Lifetime (Years)			
Coal Steam	60	60	Coal and oil/gas steam powerplants are refurbished after 30 years for $200/kw (early 1986 $). This is assumed to extend their useful lifetime from 45 to 60 years. Reconversions are assumed to retire 30 years after their reconversion date.
Oil/Gas Steam	60	45	
Nuclear	35	35	
Oil/Gas Turbine	20	20	
o Coal Powerplant Heat Rates Over Time	0.25% per year increase over current levels. After refurbishment, heat rates are improved (decreased) by five percent.	SAME	Based on empirical studies and engineering assessments of heat rate deterioration over time and the effects of powerplant refurbishment.
o Minimum Turndown Rates	Coal :35% Oil/Gas Steam:20%	SAME	Coal and oil/gas steam units must operate at or above minimum load.
o Cogeneration (bkwh)			
	1990 = 85	1990 = 77	Latest ICF analysis of cogeneration facilities are used in the new case.
	1995 = 117	1995 = 99	
	2000 = 154	2000 = 125	
	2010 = 194	2010 = 149	
o Canadian Power Imports (bkwh)			
1990	68	69	The new case reflects latest ICF analyses.
1995	64	90	
2000	76	87	
2010	75	97	

COMPARISON OF KEY INPUT ASSUMPTIONS
FOR NEW AND PREVIOUS EPA BASE CASES
(Continued)

Critical Parameter	Interim 1987 EPA Base Case	1985 EPA Base Case	Comments
NON-UTILITY COAL DEMAND			
o Industrial/Retail Coal Use (millions of tons)	1990 = 87 1995 = 91 2000 = 98 2010 = 137	1990 = 109 1995 = 135 2000 = 170 2010 = 220	Latest forecast of ICF Industrial Boiler Model (IBM) combined with latest ICF forecast of the kiln and residential/commercial coal markets. Lower numbers reflect effects of lower oil and gas price forecasts. After 1990, large industrial boilers (greater than 100 MMBtu/hr) are assumed to be required to scrub.
o Coal Exports (millions of tons)			
-- Steam Coal	1990 = 24 1995 = 32 2000 = 35 2010 = 35	1990 = 25 1995 = 48 2000 = 69 2010 = 120	Latest ICF forecasts are used in the new case.
-- Metallurgical Coal Exports	1985 = 56 1990 = 49 1995 = 45 2000 = 40 2010 = 30	1985 = 53 1990 = 49 1995 = 53 2000 = 61 2010 = 65	Latest ICF forecasts are used in the new case.
o Domestic Metallurgical Coal Use (millions of tons)	1985 = 45 1990 = 37 1995 = 35 2000 = 32 2010 = 29	1985 = 54 1990 = 61 1995 = 62 2000 = 62 2010 = 62	Continuing trends in steel substitution limit forecasted domestic metallurgical coal use through most of the 1980s. Import reductions programs are now assumed to have less effect.
o Synthetics (Coal Input in millions of tons)	1990 = 6 1995 = 1 2000 = 1 2010 = 1	1990 = 8 1995 = 8 2000 = 8 2010 = 8	Outlook for coal-based projects continues to be unfavorable. Current forecast includes continued operation of the Great Plains gasification plant through 1990.
COAL SUPPLY PARAMETERS			
o Coal Transportation Rates (% Annual Real Escalation)			
-- Rail	Long-run marginal costs based on engineering	1981-1985 = -5.0% 1986-2000 = 0.0%	We have lowered our estimates of rail costs based on analysis of engineering and other cost data.

COMPARISON OF KEY INPUT ASSUMPTIONS
FOR NEW AND PREVIOUS EPA BASE CASES
(Continued)

Critical Parameter	Interim 1987 EPA Base Case	1985 EPA Base Case	Comments
COAL SUPPLY PARAMETERS (Continued)			
-- Truck; Barge	Long-run marginal costs based on engineering analysis	1981-1985 = 5.0% 1986-2000 = 0.0%	
o Mining Costs (% Annual Real Escalation)	Capital = 0.0% Labor 1984-1987 = 1984 Contracts 1987-on = 2% per year Materials = 0.0% Deep Productivity = 3% Surface Productivity = 2%	Capital = 1.0% Labor 1984-1987 = 1.0% 1987-on = 2.0% Materials = 0.0% Productivity = 1-2%	Labor rates until 1987 reflect 1984 contract. Real escalation depends upon inflation. Deep mine productivity now assumed to increase at 3% per year in new case.
OTHER GOVERNMENTAL REGULATIONS			
o Federal Leasing Policy	Enough	Enough	Federal leasing is assumed to be sufficient to avoid artificially driving up market prices.
o Air Pollution Regulations	Most recent federal and state rules, including proposed changes in state SIPs and state acid rain programs. No changes in limits associated with tall stack regulations. Large industrial boilers must scrub by 1990.	Most recent federal and state rules. SO2 emission limits assumed to be tightened in New and Wisconsin over the next ten years.	

COMPARISON OF KEY INPUT ASSUMPTIONS
FOR NEW AND PREVIOUS EPA BASE CASES
(Continued)

Critical Parameter	Interim 1987 EPA Base Case	1985 EPA Base Case	Comments
FINANCIAL PARAMETERS			
o Tax Depreciation Life (years)			Tax depreciation based on ACRS of 1981 ERTA for 1985 EPA Base Case. New tax act requires 150% declining balance depreciation and results in removal of the five year rapid write-off provision for retrofit pollution control.
Retrofit Pollution Control	15	5	
Others	15	15	
o Real Discount Rates (% Per Year)	Coal Mine = 6.00% Utility = 4.27%	SAME	
o Real Capital Charge Rates			New charge rates are higher under the new tax law due to the elimination of the Investment Tax Credit and changes in tax depreciation which slightly offset the impacts of a lower tax rate.
Coal/Nuclear/Combined Cycle	9.4%	9.0%	
New Scrubbers/Particulate Equipment	9.4%	9.0%	
Combustion Turbines	11.3%	10.5%	
Retrofit Scrubbers	9.0%	6.5%	
o Book Life (years)		SAME	
Coal/Nuclear/Combined Cycle	30		
Combustion Turbine	20		
Pollution Control-Retrofit	30		
Pollution Control-New	30		
o Input Year Dollars	Early 1986	Early 1980	
o Output Year Dollars	Mid 1987	Early 1985	
o Escalation Input to Output Dollars	1.045	1.34	

Question: The cost of acid rain control also hinges on whether or not the legislation requires plant-by-plant controls or a statewide average with full interstate trading. For a 12 million ton SO_2 to be achieved by 1996, please compare the costs of achieving a .9 lb per million BTUs statewide average with full trading and a .9 lb per million BTUs plant-by-plant reduction requirement.

Answer: We have not carried out any detailed modeling analyses of the two cases for which you have requested comparison. It is clear, of course, that the plant-by-plant requirement would be more costly. It would also probably result in larger reductions, but we would expect that the cost-effectiveness in $/ton SO_2 removed would be higher. A slightly different example is available, which illustrates this point. In an analysis last year of H.R. 4567, we included a low cost case which required a State average annual SO_2 emission rate of 1.2 lb/MMBtu achieved at least cost within each State. This analysis also included a default case in which each unit was required to meet a 1.2 lb/MMBtu annual emission rate. The low cost case resulted in an SO_2 reduction of 8.1 million tons at a cost of $2.5 billion. This is an average cost of $306/ ton SO^2 removed. The default case resulted in a reduction of 10.0 million tons at a cost of $5.5 billion. This is an average cost of $534/ton SO_2 removed. We are confident that this relationship would also be true at the 0.9 lb/MMBtu level. However, we do not know, without carrying out detailed models runs, whether the cost differential would be larger or smaller.

Question: How many tons of eastern low sulfur coal reserves can currently meet a .9 lb per million BTUs monthly individual plant standard (without the use of technological retrofits)? What percentage of the total eastern low sulfur coal reserve does this represent? How many tons of western low sulfur coal reserves can meet this standard and what percentage does this represent?

Answer: EPA has not as yet completed any detailed analysis of reserves in the sulfur categories you have identified. Our normal assumption in dealing with monthly standards is that the annual average sulfur content should be about 15-20% lower than the standard to ensure that the monthly requirement is met despite inherent coal sulfur variability. This would mean that coal reserves which could meet a .9 lb monthly standard would have to be .75 lb/million Btu or less. Our judgement based on limited and uncertain coal reserves data is that there is very little mineable coal below .75 lb/million Btu in the East. We are planning to reexamine that judgement in more detail in the near future because of the important role such reserves could play in response to some of the legislative proposals which have been introduced recently.

While we have not analyzed coal reserves data for the West in conjunction with a .9 lb monthly limit, we are confident that significant quantities of coal in the Western reserves base could meet this standard. Much of the coal however, is subbituminous. There may be significant limitations or difficulties involved with burning these coals in existing power plants designed to burn Eastern bituminous coals.

Question: Are there any eastern low sulfur coal reserves which can be burned in cyclone boilers without technological retrofits? If, how much and what percentage of the total reserve?

Answer: Eastern low sulfur coal cannot in general be successfully burned in cyclone boilers. Coal fired cyclone boilers require a coal ash chemistry which produces an ash slag which is fluid at normal cyclone operating temperatures. If the fluidity of the ash is too low at cyclone operating temperatures, then the slag cannot be taped and the cyclone cannot be continuously operated.

The fluidity or viscosity of the ash slag is determined by the relative amount of various coal minerals which are turned into ash during combustion. The ash which is composed of oxides formed by combustion may be classified into base (Fe_2O_3, CaO, MgO, Na_2O, and K_2O) and acid (SiO_2, Al_2O_3 and TiO_2) components. If the base to acid ratios of the coal ash is less than about 0.4, the viscosity of the ash slag is too high (fluidity is too low) and the coal cannot be used by itself in a cyclone boiler without major retrofits.

Low sulfur eastern coals generally have base to acid ratios which make them unsuitable for use in cyclone boilers. Eastern coals with low sulfur contents generally have ash with base to acid ratios less than 0.4. This is believed to be a fundamental consequence of the geologic depositional environments under which eastern coals were formed. While there may be some exceptions to these general observations, detailed studies of individual coal seams will be required to determine whether there are any low sulfur eastern coals suitable for use in cyclone boilers.

We do know that some low sulfur eastern coals are being burned in cyclone boilers currently. This is rare and generally due to special site specific circumstances. For purposes of modeling acid rain control strategies, we assume that whatever low sulfur eastern coal reserves can be burned in cyclone boilers have already been dedicated to the few such boilers which currently use these coals. In our modeling analyses, we do not allow switching to low sulfur eastern coal to occur at cyclone boilers currently using high sulfur coal.

Question: Energy conservation appears to offer significant benefits as a part of an acid rain control strategy. The State of Wisconsin estimates that it can save up to 1/3 of the cost

of its cleanup by relying on energy conservation. Please provide this subcommittee with an assessment of the potential cost savings from the use of energy conservation as a part of an acid rain control strategy on a national basis. Please include the cost of implementing the energy conservation measures in your calculation.

Answer: The EPA has been investigating the role that energy conservation measures might play in the implementation of a potential acid rain control program. The mechanism for this investigation has been the State Acid Rain (STAR) Program which was funded by a special FY 1985 Congressional appropriation to examine the types of problems that might arise for State air program managers if acid rain control legislation were enacted.

We are aware of the Wisconsin findings and the impact that conservation measures might play in reducing cost of any acid rain control program. In the course of their STAR projects, two other states (Massachusetts and Tennessee) explored the relationship between energy conservation and acid rain control. All three projects have identified energy conservation measures as having significant potential to reduce total control costs, increase flexibility of utilities in meeting reduction targets, and/or to reduce future growth in demand for electrical energy.

From these preliminary efforts, though, it is clear that more rigorous analysis is needed. For instance, the term "conservation" has widely different interpretations and a common terminology needs to be developed. In addition, comparable cost analysis techniques need to be developed so that conservation and conventional control approaches can be fairly evaluated. Finally, considerable uncertainty exists as to the likely timing and extent of deployment of conservation measures.

In general, we believe that aggressive deployment of conservation measures will reduce emissions; however, at this time, we are unable to quantify the potential national savings if such an effort were part of an acid rain control strategy.

While EPA believes that it is important to consider the projected cost of acid rain controls to utilities with and without use of conservation measures, we believe at this time that the energy and cost savings identified by the STAR projects may be optimistic or may represent the upper bounds of future deployment of energy conservation measures.

INCINERATORS

Question: With tighter standards now required for landfills, there appears to be a sudden and dramatic increase in the number of requests for permitting of garbage incinerators. What projections do you have for the number of new incinerators to be constructed over the next five years? How much electricity is projected to be generated by these facilities?

practice has been targeted for reduction or replacement? In mately 190 new municipal waste combustion facilities will be built. The new facilities will represent a new capacity of 183,000 tons per day of waste, compared to 45,000 tons per day of current capacity. Many of these facilities are still in the process of being planned, so the actual number of facilities built in that timeframe may be somewhat lower.

The Agency does not have data on the total quantities of electricity or steam expected to be generated by these projects. However, the electrical generation capacity of such facilities is relatively small; for example, one of the largest planned mass-burn facilities is expected to have a generation capacity of only 80 megawatts.

GARBAGE INCINERATORS

Question: Incinerators are a source of dioxins and furans, as well as a wide range of heavy metals and organic toxics. Can you provide the subcommittee with an assessment of the types and amounts of toxics that will be emitted as well as the SO_2 and NO_x emissions from a typical large incinerator?

Answer: The following emission figures are for a 1,000 ton per day conventional mass burn facility with heat recovery and a well-designed electrostatic precipitator for particulate matter control. Emissions could vary widely around those shown below depending on the specific design, operating parameters, waste burned and type of pollution control equipment.

Annual Emissions from 1,000 Tons Per Day Municipal Waste Combustor

Pollutant	Emissions (10^6 grams)
Sulfur oxides	151
Nitrogen oxides	830
Chlorine, HCl	600
Dioxins and Dibenzo Furans	.0004
PCBs	.00076
Chlorobenzenes	.0001
Lead	4.3
Mercury	1.0
Cadmium	.24
Arsenic	.07
Chromium	.4
Beryllium	.0007

Other test data at new mass burn facilities with an electro-

static precipitator for particulate matter control show emissions for total furans of 61 ug per Mg (1.1 tons) of waste burned. The type of control device can have a significant effect on emissions of certain pollutants. For example, a dry scrubber in combination with a particulate control device would be expected to reduce the emissions of organic pollutants (dioxins, formaldehyde, benzo-a-pyrene, etc.) by 95 percent, mercury by over 90 percent (depending on operation of control device), and sulfur dioxide by 70 percent. Many new facilities are expected to incorporate dry scrubbing controls.

Question: What are the health risks associated with incinerator emissions? Please provide a comparison of relative risk between exposure to incinerator emissions and other environmental risks, including living near a hazardous waste landfill.

Answer: The Agency is in the process of evaluating the health risks associated with incinerator emissions, and will present these risks in its Report to Congress on municipal waste combustion, which will be submitted at the end of May, 1987. Until the Agency has evaluated the health risks, it would be difficult to make any comparisons with other disposal options.

Question: Recent news accounts have attributed a significant health risk to fly ash disposal from incinerators. Please provide the subcommittee with an assessment of this risk and a comparison of this risk with other environmental risks. From an overall environmental health perspective, please compare the risk and environmental problems associated with the use of landfills for garbage with the use of incinerators and related flyash disposal facilities.

Answer: An assessment of the risk from ash disposal cannot be carried out until reliable data on municipal waste combustion ash and ash leachate are available. The Agency is currently in the process of collecting data on ash characteristics and ash leachate. This data will be available in late summer. The risk associated with the use of landfills and the risk associated with the use of incinerators is likely to vary significantly depending on the types of incinerators and landfills used and the characteristics of the sites at which the incinerator, ash landfill, or garbage landfill were placed. In addition, the risks are likely to result from different types of effects, and may therefore be difficult to compare. Finally, data on some types of risks (e.g., leakage of gases from landfills) are not yet available. The Agency is currently considering how an appropriate comparison of the risks associated with landfills and those associated with incineration might be made.

ALTERNATIVE TEST METHOD DEVELOPMENT

Question: Which of the animal tests currently required by the agency either through regulation/guidelines or tradition/

practice has been targeted for reduction or replacement? In your reply, indicate how, when, where and the results.

Answer: EPA has been monitoring the development and validation of test methods which reduce or obviate the use of experimental animals. Although many tests are under consideration, few have reached a point where they are viewed as scientifically adequate for regulatory purposes. In late 1984 the Agency articulated its policy as to acute toxicity (and the LD_{50} controversy). Basically, this policy maximizes the amount of information from a minimal number of animals. More recently, we've included in our testing requirements a mammalian screen of developmental toxicity which greatly reduces the numbers of animals involved. Finally, we have worked constructively with the Organization for Economic Cooperation and Development to ensure the consistency of test data protocols world-wide; obviously this helps to obviate repeat testing in different countries and results in a significant saving of animals.

Question: I am particularly interested in knowing what efforts are underway to promote range finding tests instead of the classic LD-50.

Answer: As was mentioned in the answer to the last question, EPA reported its testing hierarchy in late 1984. This position is consistent with the current state of the science, and it categorically stated that we opposed the classic LD_{50} test. Instead we encouraged starting with a review of chemicals structurally related to the one under investigation. In some cases, enough information can be gleaned to obviate the need for any testing. If acute toxic effects can not be predicted, a limit test should be performed by giving a small group of animals a single, high dose of the compound. In the absence of lethality, testing should be stopped. If further information is needed, three small groups of animals should be tested at different doses. Observations should be made on the onset, nature, and course of reactions to the exposure, and a complete exam should be performed of all animals to calculate the frequency of all adverse behavioral and pathologic reactions and death. In this way the testing procedures maximize information and minimize animal usage.

The role of range-finding studies in the evaluation of acute toxic responses is dealt with in an explicit and implicit manner in the EPA test guidelines. By definition, the limit test is a range-finding screen; it quickly removes from further analysis all chemicals that lack significant acute toxic potential. In selecting the 3 doses for those chemicals deserving study beyond a limit test, one might want to perform other preliminary screens to be able to bracket the full spectrum of reactions to the agent -- from behavioral, to target-organ and finally, to death. In addition, the Agency receives acute toxicity data in its new chemicals programs under TSCA which employ various screening approaches.

VALIDATION OF RANGE FINDING TESTS

Question: What have you done to validate these range finding tests?

Answer: The Agency has undertaken substantial efforts to validate these range finding tests. We have tested aspects of the predictability of Structured Activity Relationships (SAR) tests, and are leveraging our own efforts by following the results of research by other groups on range finding tests.

AVAILABILITY OF TOXICOLOGICAL DATA

Question: Is the Agency's toxicological data on generic substances made available on retrievable data base to avoid duplication or repetitive testing on identical substances or ingredients?

Answer: In the Office of Pesticide Programs, descriptive, publicly releasable information about all registrant-submitted studies, including those on toxicology, is available on a retrievable data base (the Pesticide Document Management System -- PDMS) and can be used to retrieve the nature and identity of studies on particular substances or ingredients that have already been submitted to the Agency. The objective of providing information that can help avoid duplication or repetitive testing is therefore supported.

The studies themselves are not generally available for registrant use, because FIFRA section 10(g) prohibits making such registrant information available to employees/agents of multinational pesticide producers.

Registrants that are not multi-national producers, currently gain access to PDMS via internal Agency staff, who do the retrievals at registrants' request. Steps are being taken at this time to make the PDMS data base (without trade secrets) available for direct access by registrants and the general public. PDMS will be added to the product information data base now publicly available on a subscription basis on the National Pesticide Information Retrieval System (NPIRS) operated by Purdue University. After PDMS is accessible to registrants at NPIRS, they will be able to do retrievals and obtain information that will enable them to avoid duplicating studies that have previously been submitted to the Agency.

All unpublished toxicological data submitted to the Office of Toxic Substances under sections 4 and 8 of the Toxic Substances Control Act (TSCA) are indexed in the TSCATS (TSCA Test Submissions) data base.

The data base is available to EPA and the public via the Chemical Information System (CIS), an online data base vendor.

The system provides full search capabilities including the ability to conduct substructure searches to identify all members of a generic class of chemicals.

TSCATS currently has 5,159 documents on 2,527 chemicals. It is being updated quarterly with those submissions received in the prior 4-6 months. In addition, OTS is going back to enter submissions from the late 1970's and early 1980's.

This data base is used by the literature searchers including OTS staff and by contractors supporting the Chemical Testing process.

ALTERNATIVE TEST METHODS DEVELOPMENT

Question: What's being done to provide extramural funds to stimulate the search for new techniques that will eventually replace the use of animals as test subjects? While I realize EPA's scientists are highly competent, there's a vast pool of talent outside government which could and should - also be tapped.

Answer: The Office of Research and Development (ORD) relies heavily on the work of outside scientists in its efforts to develop alternative test methods to replace the use of animals as test subjects. In FY 1987 ORD will spend approximately $16 million on development of alternative test methods of which approximately 50 percent, or about $8.7 million, will support the work of outside scientists through extramural grants and contracts.

The prime focus of this work is to increase our ability to use data from many species to support assessments of human risk, not to replace animals in testing per se. While we are committed to reducing or eliminating animals in testing where possible, it will be necessary to continue work with animals in both testing and research situations to improve our understanding of disease processes to the point where we hope that it will be possible to reduce the use of animals dramatically. It should be noted that this will likely take a long time. It is also important to note that advances in science that lead to improved human health are possible only through research conducted with animals (e.g., Alzheimers disease, AIDS, etc.).

Question: Do you have any plans next year for such extramural research?

Answer: We anticipate that approximately the same amount of funding will be available in FY 1988 for extramural work in the area of alternative test methods development.

Questions Submitted by Senator Leahy

REDUCTION IN FTE FOR EFFLUENT GUIDELINES

Question: The budget proposal you have submitted for 1988 would reduce the total number of workyears devoted to promulgating effluent standards and guidelines. In view of the Agency's very large unfinished agenda -- both for categories of industries that are years behind in meeting preexisting statutory deadlines, and for newly-identified industrial categories that must be completed within the 1987 amendments' clear deadlines. What will be the effect of this reduction in resources? What level of resources will be needed to meet the 1987 amendments deadlines?

Answer: The 1988 budget request, when compared to the 1987 request, reduces effluent standards and guidelines by one workyear. The Agency has considered the impact of the Water Quality Act requirements on effluent standards and guidelines in developing the additional resource request for 1987 and 1988 recently submitted to OMB.

LEVEL OF FUNDING FOR NONPOINT PROGRAM

Question: What level of funding will EPA seek in its revised 1988 proposal for the nonpoint source pollution management program mandated by the 1987 Clean Water Act amendments? Will you seek the full amount authorized by the Congress?

Answer: The Agency will submit its FY 1988 Budget Amendment request for the Nonpoint Source program authorized by the Water Quality Act of 1987 after it has been reviewed by OMB.

FUNDING FOR CLEAN LAKES PROGRAM

Question: Will your revised 1988 budget proposal contain funding for the Clean Lakes Program? I remind you that you recommended no funding for the program in 1987, and the Congress nevertheless in the 1987 amendments about its strong commitment to a lake cleanup demonstration program.

Answer: In developing its revised 1988 budget proposal that recently was submitted to OMB, the Agency recognized the strong commitment that Congress made to the Clean Lakes program in the 1987 amendments.

CONSTANT STAFF LEVELS FOR WATER QUALITY

Question: What is EPA's rationale for holding staffing levels constant for the water quality and sludge regulatory programs when there remains major unfinished business under this budget element and EPA faces new short-term statutory deadlines? Isn't it clear from past missed deadlines that additional resources are needed?

Answer: The 1988 President's Budget was developed prior to enactment of the Water Quality Act of 1987. The Agency considered

the additional requirements related to sludge criteria and water quality standards for Indian tribes as it developed its revised 1988 budget proposal.

CONSTANT STAFF LEVELS FOR WATER QUALITY PERMIT

Question: How can the Agency claim that enforcement will be a major priority when you propose to cut back significantly on your already inadequate staffing of this program?

Answer: The 8.5 workyear reduction in the FY 1988 Water Quality Enforcement budget will not affect the number of enforcement actions or inspections and is not a reflection of a reduced priority for enforcement. The 8.5 workyear reduction will be taken out of data entry and data review resources. Over the previous three years, the Agency has invested considerable money and human resources to automate data entry and review. The result of this investment is a less resource intensive system that enabled reprogrammings to offset the 8.5 workyear reduction.

ALLOCATION OF WORKYEARS FOR WATER QUALITY PERMIT ISSUANCE

Question: For 1987 and 1988 respectively, you have requested an increase in workyears of 22.4 over the 1986 workyear level of 273.3 in the Water Quality Permit Issuance area. Given the agency's permit issuance backlog, its commitment to the states to help with more complex job of issuing water quality-based permits, and your new responsibility to issue stormwater permits, its clear that a major staffing increase is necessary for this program. Have you requested adequate new staff? Explain to the Committee how you propose to allocate the 295.7 workyears you are requesting among your many responsibilities to issue NPDES permits and stormwater permits, and to provide essential assistance to the states.

Answer: The 1988 allocation of resources for Permit Issuance is as follows:

Activity	Workyears
Major Permits (including industrial and municipal permitting, modifications, variance/waiver review, and evidentiary hearings resolution)	164.2
Pretreatment	57.3
State Programs (including program approvals, permit assistance, NPDES State overview)	74.2
Total	295.7

In addition, an estimated $450,000 will be used for contractor support to assist States in permit issuance.

Included in the above are approximately 5 workyears and $240,000 for issuance of general permits (including oil and gas and stormwater permits). In addition, the Agency has developed a Clean Water Act supplemental request to address the provisions of the new law. This request was recently submitted to OMB.

It should also be noted that over the years, the Agency has not included resources for minor and/or stormwater permitting in the budget request. FY 1986 was the only recent budget request that included resources for minor permitting. The Agency, in FY 1984 and FY 1985, completed a major effort directed at reducing the major permit backlog and, in FY 1986, expanded the effort to minor permits. As in past years, the request did not include "routine" minor permits that are issued as part of the annual permit issuance process. The intention was to focus on the significant minors that were affecting water quality standards. Minor permits were not included in the FY 1987 and FY 1988 budgets because resources were redirected back to major permits giving a new priority to identification and control of toxic pollutants. The Agency expects that minor permits will continue to be issued as they have in past years.

ALLOCATION OF WORKYEARS FOR WATER QUALITY PERMIT ISSUANCE

Question: From where in the proposed budget do you intend to draw the resources to implement the stormwater permitting and study provisions of the new law?

Answer: The Agency has developed a FY 1988 supplemental request to address the provisions of the new law, and this was recently submitted to OMB.

INSPECTIONS

Question: EPA's 1988 budget request for Enforcement shows a 1.1% increase, approximately $210,600, and a decrease of 8.5 workyears (WQ-64). At the same time, EPA projects that 360 more Administrative Orders, 32 more civil litigation suits, and 8 more criminal suits will be instituted for that year. The only reduction in workload that was listed was in the area of Inspections, down 149 in 1988 (WQ-7).

Does $210,600 + 360 AOs + 40 court cases - 9 workyears = 149 Inspections, in terms of money and staff time? What is the average cost of an Inspection versus an Administrative Order?

Answer: The cost of an inspection ranges from 1 workday for a reconnaissance inspection to 35 workdays for a biomonitoring inspection. The average cost of an Administrative Order (AO) is 17 workdays.

The 8.5 workyear decrease does not equate to either the decrease in inspections or the increase in enforcement. The increase of enforcement and the decrease of 8.5 workyears resulted from a reprogramming from data entry and review activities. This reprogramming was made possible because of improvements made to the data system and the automation of permittee self-monitoring data.

Question: Why does EPA feel that it needs 149 fewer Inspections? Shouldn't the inspection process be ongoing in order to maintain levels of compliance and assure that the requirements of Administrative Orders are met?

Answer: The 149 fewer inspections are primarily a result of reprogramming from simple site evaluations by EPA inspectors, to more resource-intensive biomonitoring and toxics sampling inspections as part of EPA's effort to control toxics and toxicity in wastewater effluents. EPA and the States have historically operated under a policy that EPA and States inspect, at a minimum, all major permittees. Although the number of EPA inspections decrease, the combined total of EPA and State inspections will continue to cover at least all major permittees. States are assuring continued complete coverage of wastewater treatment facilities by conducting the greater number of reconnaissance inspections where compliance monitoring data and previous experience have indicated facility compliance has not been a problem.

PERMIT ISSUANCE

Question: For 1988 EPA plans to issue 248 major industrial permits and 185 major municipal permits, up 159 from 1987, no minor permits are mentioned. It will also be necessary for EPA to issue stormwater permits and permits for oil and gas in 1988 (WQ-7). The budget request for these functions is $15,568,900, down 1% from 1987 (WQ-69).

Permitting is the crux of any enforcement program. Permits must be properly issued and maintained in order for compliance to be meaningful. Does EPA believe that it can issue 159 more major permits, undertake the permitting of stormwater, oil, and gas, and review all necessary permits on this budget? If so, how would the resources be allocated, money and workyears?

Answer: A total of 21.1 workyears have been reprogrammed within the base from other priority permits to increase emphasis on major permit issuance and review. An allocation of 164.2 workyears and $4,678,000 will be made to major permit issuance and general permits for oil and gas activities. The Agency has developed a Clean Water Act supplemental budget request to address the provisions of the law and this includes resources for stormwater permitting.

Question: Why isn't EPA issuing any minor permits in 1988? Aren't any of these permits necessary? Would increased resources, money and staff time, allow you to issue the necessary permits?

Answer: Although the Agency, over the years, has not included resources for minor permitting in the budget request, minor permits are issued every year. The only recent budget request that included specific resources for minor permitting was the FY 1986 budget. In FY 1984 and FY 1985, the Agency completed a major effort directed at reducing the major permit backlog and, in FY 1986, expanded the effort to minor permits. As in past years, the request did not include routine minor permits that were issued as part of the annual permit issuance process. Our intention was to focus on the significant minors that were affecting water quality standards.

Minor permits were not included in the FY 1987 and FY 1988 budgets because resources were redirected back to major permits giving a new priority to the identification and control of toxic pollutants. The Agency expects that minor permits will continue to be issued as they have in past years. Additionally, in FY 1988, minor permits will be given as much attention as majors, where they are contributing to water quality problems, especially those caused by toxic pollutants.

The Agency has developed a supplemental budget request which considers expansion of the toxic control permitting effort pursuant to the new provisions of the Water Quality Act of 1987. The requested resources will be adequate to issue priority permits, including both major or minor facilities. In FY 1988, the focus of permit issuance will not only be based on the major/minor permitte split, but more importantly the control of toxic pollutants.

STATE GRANTS

Question: The 1987 reauthorization of the Clean Water Act earmarked $75,000,000 per year for grants to States to develop water quality standards, assess water quality conditions and trends, develop nonpoint source pollution and groundwater strategies and pursue enforcement actions (Section 101). EPA has requested $62,100,000 per year for these grants, $12,900,000 below authorization level, at a time when the States are being asked to take on increased responsibilities not only for the maintenance of programs already in place but for the initiation of such complex programs as groundwater and nonpoint source pollution strategies (WQ-37).

In view of the increased burden placed on States under the new amendments, shouldn't the States receive grants at at least the authorized level of $75,000,000 for 1988?

Answer: The Agency has submitted a revised FY 1987 and FY 1988 budget proposal to OMB which considers the impact on the States of implementing the requirements of the Water Quality Act of 1987.

FUNDING FOR NONPOINT SOURCE CONTROL

Question: The Clean Water Act calls for $70 million in funding in 1988 to start putting this program into place. EPA's budget request asks for no funding for non-point source pollution control. I understand that you have submitted a supplemental request to OMB for review. Will the amount requested meet the $70 million authorization level and be adequate to get the program off to the good start that is necessary to assure its success?

Answer: The Agency will submit its FY 1988 Budget Amendment request for the Nonpoint Source program authorized by the Water Quality Act of 1987 after it has been reviewed by OMB.

NATIONAL ESTUARY PROGRAM

Question: How does EPA propose to implement a National Estuary Program on negative funds? If there is a supplemental request that EPA has submitted to OMB, will the requested funds comprehensively cover this program?

Answer: For FY 1987, EPA requested $4.3 million to conduct the National Estuaries Program and Congress appropriated $7.2 million. For FY 1988, EPA is requesting $5.3 million, an increase of $700,000 above the Agency's FY 1987 request, to continue five of its six existing estuary programs and complete a Master Environmental Plan for the sixth. At the FY 1988 request level, EPA does not plan to increase the total number of estuaries studies underway.

The Agency has recently developed an amended FY 1988 request that considers new programs and requirements under the Water Quality Act, and the request has been submitted to OMB.

RESOURCES FOR POTWS

Question: Do you think that if the government issued greater support to these POTW's more of them would meet the 1988 deadline? What level of resources would be needed to assure a greater compliance rate in general?

Answer: EPA's policy is to aggressively get non-complying facilities on enforceable schedules, with or without federal funds. We do not think that funding at above the authorized levels would necessarily result in additional facilities meeting the 1988 compliance date. In general terms, the time needed to complete construction would not enable many additional POTWs to meet the 1988 compliance deadline.

The 1986 Needs Survey estimated eligible needs of $15.5 billion for National Municipal Policy non-compliant facilities. In addition, compliance problems at non-discharging facilities, public health/groundwater related needs, and the needs of marginally complying facilities bring compliance costs up to about $33 billion.

RESOURCES FOR CLEAN LAKES PROGRAM

Question: In the FY 1985 Appropriations, Congress gave and directed EPA to assign three additional staff (FTEs) to the Clean Lakes Program in the Washington office. The EPA, for reasons of their own, chose not to assign these positions to the Clean Lakes Program. There are currently some 200 active Clean Lakes projects nationwide involving 40-50 million Federal dollars. In Headquarters alone, this workload should represent five man-years annually. In addition, the ten EPA Regions have a total of only five staff assigned to the Clean Lakes Program (1/2 person/ Region). How does the EPA explain this lack of oversight of Federally-funded projects and inattention to an obviously popular and on-going program?

Answer: The Agency believes it has devoted adequate resources to manage the Clean Lakes program to this point. In addition to these resources, the Agency has considered supplemental Clean Lakes management resources for FY 1987 and FY 1988 to support the new requirements of the Water Quality Act of 1987.

SUPPLEMENTAL REQUEST FOR CLEAN LAKES AND NONPOINT

Question: Given the strong reauthorization of the Clean Water Act, in general, and specifically the Clean Lakes Program and Non-point Management Program, why has the EPA not requested any funds for these programs in their supplemental FY 1987 or (amended) FY 1988 budgets?

Answer: The Agency has developed a revised FY 1987 and FY 1988 budget proposal in these areas, which was recently submited to OMB.

Questions Submitted by Senator Mikulski

CHESAPEAKE BAY PROGRAM

Question: To meet the needs of the Bay Program, EPA is using a number of temporary positions to do the job in addition to the 10 permanent employees already authorized: What is the current status of staffing of the EPA's Chesapeake Bay Program?

Answer: The Bay Program currently has an authorized EPA staff ceiling of ten full time equivalent employees. An additional seven overceiling positions, occupied by nine full and parttime individuals are allocated to the program. The regional allocation of overceiling positions is done annually, and so in a sense, these positions are temporary. The program is assisted by seventeen contractual employees who staff the Chesapeake Bay Program Computer Center. Staffing needs are being reconsidered as the result of the Water Quality Act of 1987, but no final decision has been made.

Question: So you are really having to borrow employees from other activities in Region 3 to do the Bay Program's work?

Answer: Yes, the program is getting assistance from other activities to help fulfill the obligations of the Bay Program's Agreement; however, these activities are able to maintain their current workload in addition to assisting the Bay program.

Question: Don't you think that the responsibilities which the EPA Bay Program Office already has will continue at the current level or perhaps even have to increase some?

Answer: Responsibilities for this program will continue at approximately the current level.

Question: Then why doesn't EPA and the administration simply request in the budget the full $13 million for the Bay already authorized by the Clean Water Act?

Answer: In consideration of National and other Agency priorities, the current staff and resource levels are considered to be adequate for the Agency and the States to proceed with the implementation of the Bay conservation and restoration plan.

SHIP INCINERATION

Question: In 1986, Assistant Administrator Larry Jensen denied a permit for a research burn of hazardous waste by ship incineration. At that time, he recognized the need for a comprehensive hazardous waste strategy that would include examination of all waste disposal methods. What progress has EPA made in conducting this comprehensive study? How much of your budget is spent on this effort?

Answer: EPA's Office of Solid Waste and Emergency Response (OSWER) developed a Hazardous Waste Strategy in July 1985. The

Strategy is based on a concept of preventing waste transfers from one location to another and from one medium to another. OSWER uses the Hazardous Waste Strategy to identify cross-media problems at the earliest possible stage and communicate hazardous waste issues to the public and Congress. The preparation of this study did not involve any Office of Water resources.

The objective of the Hazardous Waste Strategy is to better understand the cross-media implications of waste regulations, such as the land disposal restrictions or ocean incineration. The Strategy relies on existing data, best technical judgements concerning waste flows and gross estimates of risk to evaluate hazardous waste issues. Implicit in the Strategy is a framework which provides waste generation, treatment, and disposal volume information. The purpose of the framework is to use a "material balance" approach in identifying where waste is likely to shift given regulatory options.

EMERGING ALTERNATIVE TECHNOLOGIES FOR HAZARDOUS WASTE DISPOSAL

Question: The Office of Technology Assessment, in its study of ship incineration, mentioned that there are a number of emerging alternative technologies for hazardous waste disposal. What part of your budget is spent on assessing alternative technologies for reducing and disposing of these wastes?

Answer: In FY 1988, the Office of Research and Development (ORD) is requesting approximately $33 million for research associated with the assessment of alternative technologies for reducing or disposing of hazardous wastes. These resources are used for both the evaluation of existing technologies for the disposal of hazardous wastes and for the evaluation of emerging innovative/alternative treatment technologies for hazardous wastes.

Approximately $18 million of this funding is associated with the new innovative/alternative treatment technology program for wastes associated with Superfund sites mandated by § 311 (b) of CERCLA. The activity authorized by this Section establishes a comprehensive research, development and demonstration program for the purpose of promoting the commercialization of innovative and alternative treatment technologies for the treatment of hazardous wastes from Superfund sites. This activity is funded from the Superfund Trust Fund.

Additional ORD Superfund research resources are used to evaluate and adapt existing hazardous waste treatment technologies for their applicability to treatment of wastes from Superfund sites, and for the evaluation of waste treatment technologies included in plans that are proposed for the clean up of Superfund sites.

Resources in the ORD Hazardous Waste research program (approximately $9 million) are used in the evaluation of various hazardous waste treatment technologies. These resources are used

for a variety of activities including evaluations of the effectiveness of waste altering processes and treatment alternatives to land disposal of hazardous wastes. These activities support the establishment of Best Demonstrated Applicable Technology for the treatment of hazardous wastes restricted from land disposal. In addition, about $1.3 million of this amount is invested in promoting the development of emerging technologies for the treatment of hazardous wastes.

Other resources in the ORD hazardous waste research program are invested in the evaluation of the performance of incineration/thermal treatment processes for the disposal of hazardous wastes at land based facilities. This information is used to support the evaluation of applications for incineration facility permits under the Resource Conservation and Recovery Act (RCRA) and for setting permit conditions for the operation of such facilities.

COMPARISON OF BUDGETS FOR SHIP INCINERATION AND WASTE DISPOSAL

Question: How does this compare with your proposed budget for ship incineration?

Answer: FY 1984 is the first year that the Incineration-at-Sea Program appeared in the ocean disposal permits program element of the budget request, and FY 1983 is the first year that specific expenditures can be identified for incineration-at-sea activities. Incineration-at-sea activities in previous years were included as part of other activities. The expenditures and activities identified by EPA's Office of Water are as follows:

FY 1982	at least $330,000	-- to monitor incineration of PCB wastes in the Gulf of Mexico
FY 1983	$336,000	-- to review and evaluate permit applications and conduct site evaluations
FY 1984	$450,000	-- to conduct site evaluations, review and evaluate permit applications, plus develop research strategy and ocean incineration regulations
FY 1985	$480,000	-- to conduct site evaluation, review and evaluate permit applications, develop research strategy and ocean incineration regulations
FY 1986	$3,268,300	-- to conduct site evaluations, review and evaluate permit applications, implement research strategy, and develop and implement regulations
FY 1987	$3,322,000	-- as above

In addition to the above-mentioned expenditures, $550,000 was transferred from the Office of Solid Waste and Emergency Response for use in FY 1987 for the following purposes:

a. site designation studies;
b. implementation of the research strategy;
c. development of a regulatory program.

Specific research is being conducted on the characterization of compounds in the emission and possible toxic effects of the emission on marine biota. The funding for this effort in 1985 was $350,000 and $100,000 in 1986. These projects are identified by EPA's Office of Research and Development as being part of the program funded by the Office of Water.

In addition to ocean incineration work, EPA has had considerable activity in research in land-based incineration technology, the principles of which are applicable to incineration-at-sea.

Also, in an ongoing program of marine toxicology, EPA's Office of Research and Development is conducting research on the fates and effects of specific chemicals and complex mixtures disposed in the marine environment. This program supports Agency regulatory activities regarding ocean dumping and point source discharges into marine and coastal waters.

PUBLIC PARTICIPATION IN OCEAN INCINERATION PROGRAM

Question: How do you intend to increase public participation in developing the Ocean Incineration Program?

Answer: Interested States and citizens will have several opportunities to participate in developing the ocean incineration program. With respect to the regulations, we plan to solicit additional public comment on selected portions of the proposed regulations, including: need, liability and financial responsibility, metal limits in the waste mixture, environmental performance standards, and waste analyses. We expect to reopen the comment period later this year and issue final regulations in late 1988. All of these issues were raised in the rulemaking's public comment period and at additional public hearings held during consideration of a research permit application that EPA denied last May. The Agency also will address three additional issues that were raised: port sites for loading of incinerator ships, the integrity of permit applicants, and transportation of wastes over land to the loading port.

Regarding the designation of sites suitable for ocean incineration, we have decided to promulgate, as soon as possible, that portion of the proposed regulations dealing with site selection and designation. We believe that we have ample information in the rulemaking record to proceed with this portion of the regulations. This will enable all concerned parties to know promptly which standards and criteria will apply to all ocean

incineration sites and will allow EPA to begin the lengthy site designation process for all sites.

The Agency is considering four general geographic areas in which incineration sites will be designated: waters off the northeastern and southeastern Atlantic coasts, the Gulf of Mexico, and waters off the the U.S. west coast. All of these sites will be evaluated in new updated environmental impact statements (EIS).

Through this process, all potential sites will be evaluated on an equal basis. Please note that this site designation process offers opportunities for interested parties to comment.

We expect States to play an active role in developing an ocean incineration program, especially in planning for hazardous waste management through, for example, the State hazardous waste management capacity certification process required by Section 104(k) of the Superfund Amendments and Reauthorization Act of 1986 (SARA). The State capacity certification process will require States to assure the availability of hazardous waste treatment or disposal for wastes generated in the State during a twenty year period. This will provide an incentive for States to plan for adequate capacity to manage hazardous waste generated within their borders. States may plan to use a variety of treatment and disposal options, including interstate or regional agreements, siting of new or expanded stationary treatment capacity, and mobile treatment capacity. One option available to States at their discretion is ocean incineration. The capacity certification process is a vehicle for a State to identify capacity problems for various types to hazardous wastes, and to decide if the State wants to expressly include ocean incineration among the alternatives that it plans to use to meet its capacity needs.

NOISE LEVELS AROUND AIRPORTS

Question: What legislative authority does EPA have to monitor and regulate noise levels around airports?

Answer: EPA's authority relative to airport noise is purely consultative. Under the Noise Control Act of 1972 EPA is authorized to review Federal Aviation Administration's (FAA) aircraft noise regulations and propose new noise regulations to FAA. FAA may accept or reject EPA proposals. FAA coordinates with EPA by sending the Agency advance copies of proposed noise regulations for written comments in accordance with Section 611 of the Federal Aviation Act of 1958, as amended. EPA also reviews Environmental Impact Statements (EISs) concerning airport projects.

Question: What percentage of EPA's budget goes for noise monitoring and regulation around airports?

Answer: No resources from EPA's budget support noise monitoring and regulation.

Question: Specifically, how much money and how many EPA people work on effects of noise from air traffic?

Answer: The only airport-related noise effects analysis done by EPA is in conjunction with EPA's review of Environmental Impact Statements relating to airports. However, this activity is an advisory rather than a regulatory function.

Question: Is there any coordination between EPA and FAA on the noise monitoring issue?

Answer: EPA does not coordinate with FAA on noise monitoring. State officials say they need more guidance on the issue from EPA but that EPA doesn't devote any time or resources to the issue.

Question: State Officials say they need more guidance on the issue from EPA, but that EPA does not devote any time or money to this issue. What can we do to help state Governments more on the airport noise issue?

Answer: To the extent that States request information and advice, the Agency can and does provide it. EPA becomes actively involved by reviewing EISs that concern airport projects, and comments on the noise impacts associated with such projects.

The Agency responds to requests from States for assistance on a case-by-case basis. For example ,EPA participated in the development of the noise portion of the State Environmental Plan for the State of Maryland during 1986.

Questions Submitted by Senator D'Amato

FUNDING FOR TITLE V PROJECTS - WATER QUALITY ACT

Question: Does the EPA budget proposal for fiscal year 1988 include any funds for Title V projects under the Water Quality Act of 1987 (P.L. 100-4)? If not how do you anticipate funding these projects?

Answer: The Agency has developed a supplementary FY 1987 budget request and an amended FY 1988 request to address the new requirements of the Water Quality Act. The request was recently submitted to OMB.

NEW YORK CITY SEWAGE TREATMENT PROJECTS

Question: Section 512 of P.L. 100-4 states that "notwithstanding any provision of the Federal Water Pollution Control Act, the Administrator shall pay, to the extent provided in appropriation Acts," natural gas line relocation costs associated with the construction of the Oakwood Beach and Red Hood sewage treatment projects in New York City.

The legislative history on this issue appears to indicate that the provision was not intended to come out of or otherwise diminish any State's allotment of construction grant funds.

Has EPA budgeted for this requirement? What account does this funding come out of?

Answer: In the Water Quality Act of 1987, Congress authorized funds in the amount of $7,000,000 for relocation of utilities at two New York City wastewater treatment plants (Oakwood Beach and Red Hook). If funds are appropriated, they will be awarded to the City under the provisions of the law. Any such funds would not come out of any State's construction grants allotment; rather, they would be specifically appropriated for this purpose. Currently EPA has not budgeted any money for this purpose.

SUPERFUND EMERGENCY ACTIONS -- BROOKHAVEN

Question: I am extremely concerned about the Mastic Beach/Shirley area of the Town of Brookhaven, which is an area with tremendous water contamination problems. I am attaching a copy of a letter I sent to you regarding this issue. Please provide the Committee with a copy of your response for the hearing record.

Letter From Senator D'Amato

April 2, 1987

The Honorable Lee Thomas
Administrator
United States Environmental
Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Dear Lee:

I am writing as a follow-up to our discussion at the HUD-Independent Agencies Subcommittee hearing on Friday, March 27. The subcommittee will forward to you, under separate cover, several questions I submitted for the record.

As I mentioned at the hearing, I am extremely concerned about the Mastic Beach/Shirley area of the Town of Brookhaven. As you know, this is an area with tremendous water-contamination problems. Specifically, the water contains several carcinogens, including benzene, trichloroethane, and tetrachloroethylene. Local officials have informed me that not only is the water unsafe for drinking, it also is unsafe for showering.

Your Agency's Regional Administrator in New York, Chris Daggett, has shown a tremendous interest in working toward a solution to this problem. Earlier this year, we had a long discussion regarding how we might approach this problem under the new Superfund law.

I know that EPA is already taking several Superfund actions in the area, but I would like to know if more can be done. It is my understanding that the Superfund reauthorization, signed into law last October, might allow for more of this area to qualify under Superfund's emergency program. The new Superfund language is far less restrictive regarding the need for "imminent and substantial danger." Rather, it allows EPA to go in when there is the potential for such danger. In your testimony from last Friday's hearing, you made reference to increased emergency actions under the new program.

I have several questions regarding this situation:

- Has the new language in last year's reauthorization allowed you to take any additional actions in the Mastic Beach/Shirley area which you could not have taken under the previous Superfund law?

- If not, what steps can be taken to make sure that the area receives every possible remedy under the new Superfund? For example, have the regulations regarding new criteria been promulgated? If not, when do you expect to have these new regulations?

- In the meantime, does your Agency need any additional data from local or state officials to proceed with actions in the Mastic Beach/Shirley area? In February, my staff met with local officials and EPA staff to discuss the new Superfund law and whether it might be worthwhile to reevaluate areas which would not have been eligible under the old Superfund program. It is my understanding that, since this meeting,

Suffolk County has submitted data for the Merrick Road area to the state. Are there other areas where additional data would be helpful?

I greatly appreciate your assistance in working toward a solution to this problem. I have asked the Subcommittee to incorporate your response to this letter into the hearing record.

Sincerely,

Alfonse M. D'Amato
United States Senator

LETTER FROM JIM BARNES FOR LEE M. THOMAS

MAY 06 1987

THE ADMINISTRATOR

Honorable Alfonse M. D'Amato
United States Senate
Washington, D.C. 20510

Dear Senator D'Amato:

Thank you for your letter of April 2, 1987, concerning the possibility of increased Federal action under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), to address water contamination problems in the Mastic Beach/Shirley area of the Town of Brookhaven, New York.

As you are aware, the Environmental Protection Agency (EPA) has conducted, or is in the process of conducting, Superfund removal actions at three sites located in the Mastic Beach/Shirley area in response to drinking water contamination problems. No additional information is needed from State or local officials on these sites. The removal action at Windus Drive is complete with the installation of a water main for the 21 affected homes. Two other removal actions at Friendship Drive and the Shirley/Broadway area have been approved for the provision of bottled water until the water main installation is completed.

With respect to removal authority, SARA contains much broader statutory limits in both response duration and dollar amounts than those contained in CERCLA. Thus, EPA is able to conduct more extensive removal actions under SARA than under CERCLA, though SARA does not change the basic trigger for initiating removal actions. However, recent changes to the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) do change the response criteria. Under the old NCP, we could respond only to those actions which presented an immediate and significant threat to public health and the environment. Revision of the NCP, dated November 20, 1985, broadened removal authority by allowing removal actions to be taken in less urgent situations. EPA's policy on the provision of alternative water supplies was recently

revised to accommodate this expanded regulatory authority. Under the previous policy, the action level for removal actions at drinking water contamination sites was the EPA Office of Drinking Water 10-day Health Advisories, which are characteristically emergency levels requiring immediate action. The new action level policy establishes a model based on Lifetime Health Advisories and the 10^{-4} Lifetime Cancer Risk Levels. This new policy allows removal actions to be initiated in less critical situations than before, which may be of assistance in addressing potential problems in the Mastic Beach/Shirley area.

The Suffolk County Department of Health Services (SCDHS) is providing oversight for a sampling, monitoring and data collection program for area well water. The EPA Region II removal program is coordinating on a continuing basis with SCDHS to review available data on drinking water contamination within its jurisdiction. As these data are reviewed and compared with the EPA policy on the provision of alternative water supplies as part of Superfund removal actions, determinations will be made regarding the applicability of site-specific data to the action levels outlined in that policy. At the present time, EPA is assessing the Merrick Road and Noah's Path data and is working closely with SCDHS to see if additional data are needed to define the extent of contamination.

We appreciate your interest in this matter and assure you that Region II will continue to review applicable data and take appropriate response actions, if necessary, in the Mastic Beach/Shirley area in light of current legal and policy requirements.

Sincerely,

Jay Barnes

for Lee M. Thomas

GREAT LAKES AMENDMENT

Question: During the coming year, will EPA be implementing programs at designated sites (such as the Buffalo River) under the Great Lakes Amendment to the Clean Water Act? Overall, what are the EPA's implementation plans for the Great Lakes Amendment? Will the amendment be administered to ensure that other program funds are not adversely impacted?

Answer: The Great Lakes National Program Office (GLNPO) is in the planning stage of implementing the five year study and demonstration program. Existing funding would carry the Program through most of Phase 1 by the end of 1988. Present work years reallocated within the Program from other activities are adequate to maintain the Phase 1 Program through 1988.

The current draft plan to implement the Program consists of the steps outlined below:

- Form Interagency Work Group to help coordinate the Program.

- Develop a comprehensive contaminated bottom sediments strategy.

- Do a literature review of remediation technologies employed or proposed for contaminated bottom sediments problems (with emphasis on the Great Lakes) including identification of the most promising technologies.

- Inventory Areas of Concern where contaminated bottom sediment remediation projects are being proposed or where maintenance dredging is expected to have a significant impact on contaminated bottom sediments migration.

- Develop a biological/chemical testing protocol for evaluating the severity of the problem posed by contaminated bottom sediments.

- Develop capability to predict the effectiveness of remedial action alternatives as well as the no-action alternative.

- Develop a ranking scheme to systematically and objectively rank Areas of Concern possible remedial action.

TOXIC AIR POLLUTION IN GREAT LAKES BASIN

Question: Are you familiar with a March 1987 report by the Sierra Club and Great Lakes United entitled, "Toxic Air Pollution in the Great Lakes Basin"? Do you have any comments on these recommendation? What type of resources would the Agency need to develop an airborne toxic deposition research and control program?

Answer: We have reviewed the March, 1987 report on "Toxic Air Pollution in the Great Lakes Basin" and agree that solution

to the problem would require a coordinated U.S. and Canadian effort. The Agency is currently modifying the Great Lakes Atmospheric Deposition (GLAD) Network to include monitoring of toxic organics in air and in wet and dry deposition. Phased implementation of the modified GLAD Network is planned over the next two years with an anticipated cost of $1 million per year for operation of the network and associated research. Efforts are underway to expand this activity into a coordinated U.S. and Canadian air monitoring network.

Since the problem of toxic air pollution extends far outside the Great Lakes basin and the sources for these materials are largely unknown and many are likely international in origin, it is not possible at this time to estimate the total resources required for an adequate airborne toxic deposition research and control program. Because of the multiplicity of toxic materials involved and potential sources for these materials, the complexity of the issue far exceeds that of acid rain.

INTERNATIONAL GREAT LAKES WATER QUALITY AGREEMENT

Question: What is your agency's timetable for presenting a position on the International Great Lakes Water Quality Agreement? Does the agency have the necessary resources to develop this position? Is the agency requesting or receiving increased funds for these activities or are you taking funds from other existing programs?

Answer: We will have completed a U.S. position on the Agreement by the end of July for use in formal meetings with Canada beginning in August or September. The Agency has the resources necessary to develop the position papers and support the State Department in the negotiations.

Questions Submitted by Senator Domenici

INDIAN RESERVATIONS STUDY

Question: In the last Congress, three environmental statutes -- the Clean Water Act, Superfund, and the Safe Drinking Water Act -- were amended to begin to treat Indian tribes as states for the purposes of those Acts. There is also a requirement that EPA conduct studies to determine the environmental needs on Indian reservations. Would you kindly indicate to me what plans the Agency has for conducting and completing those studies?

Answer: The needs survey called for by the Clean Water Act will be conducted in cooperation with the Indian Health Service (IHS), and will use IHS's needs inventory as a starting point. Initial meetings have been held with IHS, and the Agency intends to complete the survey for Congress by January 1988.

The study that was called for by Superfund will be submitted to the Congress in the near future. The Agency believes that a survey performed for it by the Council of Energy Resource Tribes in FY 1985 meets the intent of the statute. The Agency will perform preliminary assessments on any potential sites reported.

The Safe Drinking Water Act study has been initiated with meetings with IHS, and will use existing IHS needs data as a starting point. A contract will be issued to supplement the IHS data, and the study approach is currently being developed. The Agency expects to complete the study by the first quarter of FY 1988.

ESTABLISHMENT OF TRIBAL OFFICE

Question: Has the Agency considered the possibility of establishing a Tribal Office to effectively implement the new mandates contained in the Clean Water Act, Superfund and the Safe Drinking Water Act? States have a similar office, should tribes as well?

Answer: Implementation of the EPA Indian Policy is coordinated in Headquarters by the Office of Federal Activities, with an Indian Program Coordinator designated in each region with tribes. This structure is a reflection of the overall structure of EPA, focusing on the operating roles of the regional offices, and strongly emphasizes the regions as the most productive EPA contacts for tribal governments. This decentralized implementation allows more tribal-specific information to be exchanged between EPA and the tribes, and thus will most effectively stimulate the development of joint EPA-tribal efforts. EPA does not believe that a separate office to deal with tribes would be beneficial.

ADDITIONAL REQUEST FOR LUST

Question: Your budget request for the Leaking Underground Storage Tank program calls for expending only $25 million of the $50 million appropriated for this fiscal year and for carrying over the other $25 million for FY 88. However, it is my understanding that you will be conducting a survey of the needs of the States in May and June of this year and will be transmitting an additional request later this summer. That additional request will reflect the needs of the States based on the survey. Is this indeed, your intention?

Answer: The Office of Underground Storage Tanks has begun work on a survey of State activities that would be conducted with Trust Fund monies. The survey will provide EPA with a realistic basis for determining how much money is needed from the Trust Fund for both short-term and long-term activities. The Agency will make a decision on the need for additional funds after the survey is completed.

FUNDING FOR NATIONAL RURAL WATER ASSOCIATION

Question: The budget request again this year contains no funds for the National Rural Water Association. This Association provides a valuable service to rural water associations and is strongly supported by Members of the Congress, including me. Would you kindly provide this subcommittee with your rationale for not funding this association?

Answer: National Rural Water Association (NRWA) funding was originally provided to demonstrate a grass-roots, self-help effort toward improving compliance among small rural water systems. EPA believes that this original objective has been met; the NRWA has demonstrated the effectiveness of grass-roots training and technical assistance to rural water systems. Currently 31 State associations are established covering 33 States. With the past support that EPA has provided, the NRWA is now in a position to market its services to states and small systems.

Question: In the reauthorization of the Safe Drinking Water Act, the Congress included new additional assistance for small drinking water systems. In addition, is a requirement that EPA assist small systems in monitoring unregulated contaminants. Funding to meet this requirement is not included in the budget request. What are your plans in this regard?

Answer: The SDWA Amendments authorized $30 million in 1987 for monitoring for unregulated contaminants by small systems; Congress did not appropriate funds for this purpose in the 1987 budget. The Conference Report on the SDWA Amendment stated that failure to provide an appropriation would not relieve water systems of the responsibility to carry out this monitoring. The Agency believes that small systems are able to pay for this sampling cost at an additional cost of $50 once in five years.

[Cost for volatile organic compounds (VOCs) which are excellent surrogates for the presence of other chemicals are estimated at $200/sample including unregulated contaminants every 5 years vs. $150/sample to monitor for those VOCs that will be regulated under the SDWA, for which all systems will be required to monitor. The incremental cost of $50 applies only if analysis for unregulated contaminants is conducted simultaneously with other VOC analysis, otherwise the cost would be an additional $200].

FY 1988 SUPERFUND BUDGET

Question: Can you efficiently spend the $1.2 billion in BA you are requesting for the Superfund program?

Answer: The President's FY 1988 budget request of $1.2 billion represents a greatly expanded Superfund program. We feel our plans describe a significant and manageable program. Our emphasis is to restore program momentum and implement a balanced program to ensure that environmental threats are addressed as quickly and efficiently as possible. Rapid growth of the program is one of our major management challenges, and one we feel we are meeting responsibly.

Question: What kind of problems would you run into if Congress provided $1.5 billion for Superfund in FY 1988? How about $1.7 billion?

Answer: The President's request of $1.2 billion takes into account the increase in program activity and the time to establish the infrastructure necessary to support a greatly expanded program. Increasing the resources devoted to the Superfund program and striving for increased accomplishments must be done in an effective and prudent manner. We firmly believe that the acceleration of the program is proceeding at the fastest reasonable rate given our ability to hire additional staff, implement the program requirements of SARA, move sites through the project pipeline, and see to the orderly management of this program. The additional resources for Superfund would go beyond those required for the efficient acceleration of the program.

BIENNIAL BUDGET CYCLE

Question: Calls for budget reform are increasingly heard as budget deadlines are too often missed, important budget decisions are delayed, appropriation bills and other direct spending legislation are held up in committee, and omnibus spending bills take the place of timely and orderly consideration of individual bills. One procedural reform that is being considered is the two-year budget cycle where budget and appropriations matters would be considered in the first year, and authorizations and oversight would be undertaken in the second year. Would your department/agency favor a biennial budget process? What benefits would your agency achieve in a two-year appropriation cycle?

Answer: Yes, the EPA would favor a biennial budget cycle. It would relieve the strain on our Budget Division, freeing it to do needed analysis that presently it does not have time to do. As a result, we would be better able to prepare new budgets and to track enacted ones.

Question: Approximately what proportion of your annual appropriation request would you consider simply repetitious of the previous year's submission?

Answer: Almost no part of our appropriation request is a repetition of the previous year's request. Each year we revise the entire request, starting from the level of program elements and working up from there.

Question: What difficulties can you foresee in preparing and submitting a two-year budget to the Congress?

Answer: It would require us to forecast economic trends, salary increases, utility charges, and other costs two to three years in advance. This could be risky. Even the best forecast could produce an operating budget either too small to cover all of our costs or so large as to force us to request rescissions.

Question: Would you expect to realize any budget savings if you could plan your agency budget on a two-year basis? If so, could you estimate how much?

Answer: We have not yet studied the proposed two-year cycle in detail, but will do so over the next six months. After our study we should be able to answer this question further.

Question: If you oppose the biennial budget concept, please give this subcommittee your reasons why.

Answer: The EPA does not oppose the biennial budget concept.

SUPPLEMENTAL REQUEST

Question: What's assumed under the supplemental request to transfer $22.4 million from two programs as offsets for pay and retirement increases? For example, how would you facilitate the proposed $11 million shift in funds out of Research and Development? Would the cut be spread evenly across all media?

Answer: Cuts in both programs would not be spread evenly across all media. For both Research and Development and Abatement, Control and Compliance, we would reduce funding for our low priority programs, and our high priority programs we would keep at current levels of funding.

Question: What about the proposed $11.4 million transfer under Abatement, Control and Compliance? Where would the cuts occur here?

Answer: We would make cuts only in program contracts, not in the State Grants program.

Question: The House Appropriations Committee rejected the request to transfer funds out of these programs, as you know. Instead, they provided $14 million to partially cover most of the pay and retirement increases. How would you make up the $8.4 million difference?

Answer: We would probably take part of the $8.4 million out of the $30 million that the House provided to implement the Clean Water Act. The House appropriated the $30 million with the understanding that we might do this. To make up the rest of the $8.4 million we would make cuts in our low priority programs, just as we would in Research and Development and in Abatement, Control and Compliance.

ENVIRONMENTAL RISKS vs. AGENCY PRIORITIES

Question: Mr. Thomas, tell us briefly about the key findings included in the recent in-house report on the relationships between environmental risks and agency priorities. I understand the report suggested some modification of these priorities and I'd like to know what they are.

Answer: The report did not suggest modification of EPA's priorities, but it did note that the rankings by risk do not correspond well with EPA's current program priorities. On page XV of Unfinished Business: A Comparative Assessment of Environmental Problems, Appendix II, the report states: "Areas of relatively high risk but low EPA effort include: indoor radon; indoor air pollution; stratospheric ozone depletion; global warming; non-point sources; discharges to estuaries, coastal waters, and oceans; other pesticide risk; accidental releases of toxics; consumer products; and worker exposures. Areas of high EPA effort but relatively medium or low risks include: RCRA sites; Superfund; underground storage tanks; and municipal non-hazardous waste sites.

This divergence between what we found in terms of relative risks and EPA's priorities is not necessarily inappropriate. Some problems appear to pose relatively low risks precisely because of high levels of program effort that have been devoted to controlling them. And these high levels of attention may remain necessary in order to hold risks to current levels."

Likewise, many areas we found which reflect high risk and low EPA effort should not be misinterpreted. For example, certain areas may be currently better addressed separately by, or in coordination with, other Federal, State or local entities.

Question: To what extent does the budget request reflect these changes?

Answer: During his testimony on March 27, 1987, before the U.S. Senate Subcommittee of the Appropriations Committee, Mr. Thomas stated in response to a similar question from Senator Mikulski: "I don't think the 1988 budget reflects that specific report. The first time we would have the opportunity to incorporate this information would be in our 1989 budget. I must say, though, that the 1988 budget reflects the input of the same people who prepared the priorities report. So, to that degree, the 1988 budget does reflect it. That is why you have seen the radon program strengthened over the last couple of years, and why you have seen the Agency become far more aggressive on the stratospheric ozone depletion issue, and structuring a climate change program.

The activities the Agency has been working on, to a large extent, reflect the fact that we believe we have to take a broader look at risks and we have to look at overall resources. The Wetlands initiative that we undertook during the last year, resulted in the establishment of a new Office of Wetlands Protection. This action is supported by what you will see in the agency priorities report when you look at ecological risks.

So, overall, I feel that the direction and priorities of our 1988 budget are consistent with that report. However, they are not as specific as you will see when we look at 1989, and we have the opportunity to have the full report for input."

Questions Submitted by Senator Hatfield

NEWPORT, OREGON LAB CONSTRUCTION

Question: In an agreement reached with the House and Administrator Thomas during consideration of the FY 1985 Supplemental Appropriations Bill, it was agreed that a feasibility study would be conducted to determine the cost effectiveness of constructing a new EPA water quality lab at Newport, Oregon versus finding alternative lab space to lease in Newport. Current Lease space will soon be needed by Oregon State University for other marine research purposes.

The results of that study indicated that suitable lease space was not available and that the construction option was the preferred alternative, so EPA has conducted preliminary development plans for construction of the facility.

Has the engineering and design contract been awarded and signed for the facility?

Answer: Yes, the contract was signed on March 20, 1987.

Question: To what firm or firms was the contract awarded?

Answer: The contract was awarded to the NBBJ Group, 111 South Jackson Street, Seattle, Washington.

Question: What was the total cost of the contract?

Answer: The total cost of the contract was $636,832.

Question: When will their work be completed?

Answer: It will be completed by November 30, 1987.

Question: Will follow-up A&E work be necessary prior to construction?

Answer: None is anticipated.

Question: Please describe the general use, size and cost associated with each component of the facility including office and lab-space, test-tank and joint library.

Answer: The following is based on a current preliminary estimate; a more accurate estimate is possible after 80% of the design phase is completed.

a. OFFICE AND LAB SPACE

General Use: To provide a safe and healthful research facility for 45 people. Conduct marine science studies and research to determine the toxic effects of chemicals in marine water to marine animals, plant life and ecosystems.

Offices: 4,500 square feet net.

Laboratories: 12,000 square feet net.

Size: 45,113 square feet gross (with ancillary structures)

Estimated Cost: $7,400,000

b. JOINT-LIBRARY

General Use: To provide a modern high-technology library for study and literature research for personnel of EPA, Oregon State University, National Marine Fisheries Service, and the Oregon Department of Fisheries and Wildlife.

Size: 19,000 square feet gross.

Estimated Cost: $1,680,100

c. TEST-TANK (TOW-TANK)

General Use: To set up test models of ocean outfall pipes to determine their dispersion patterns in marine water. To calibrate marine instruments and to provide a high-bay area where ceiling height will not restrict experiments.

Size: 3,000 square feet enclosure with tank measuring 5 feet wide by 4 feet high by 100 feet long.

Estimated Cost: $561,800

d. MARINE WATER PUMPING, SUPPLY AND STORAGE SYSTEM

General Use: To provide marine water for the various research programs that investigate the biological effects of pollutants on marine life in Pacific estuarial and coastal waters.

Size: Enlarge the existing OSU pump house, add pump(s). install a new supply line to new holding tanks having a gross capacity of 600,000 to 750,000 gallons.

Estimated Cost: $703,800.

e. STORAGE BUILDING

General Use: A shop and the storage of an 18 foot boat and a car.

Size: 900 square feet gross.

Estimated cost: $77,400.

Question: What is the estimated cost for construction and any other related charges of the facility?

Answer: Barring any unforeseen problems, the cost should be $12,200,000 in FY 1988 dollars. If there are any delays, inflationary costs will have to be factored in.

Question: When is the earliest possible date for construction to begin?

Answer: The earliest possible date is April 1988.

Question: When is the likely date at which time construction could begin?

Answer: Funds have not been requested for this facility in FY 1988. Funds were obligated for design only because they were specifically provided for that purpose in the FY 1985 Supplemental Appropriations Act. In reality, the Agency views construction of a new lab in Newport as a low priority. The existing space is adequate for our near term needs.

Questions Submitted by Senator Sarbanes

CHESAPEAKE BAY PROGRAM RECOMMENDATIONS

Question: A report released on October 22, 1986 by the Governmental Affairs Subcommittee on Governmental Efficiency and the District of Columbia, based on Senator Mathias' June hearing on the Chesapeake Bay, recommended that EPA initiate and coordinate a Chesapeake toxics characterization and action program. The report also recommended that nonbinding nutrient loading goals be developed and submitted to the Executive Council. What steps have been taken to implement these two recommendations?

Answer: With respect to toxics characterization: Work now proceeding under the Implementation Committee in the area of toxics substances control and management parallels efforts of the Great Lakes Water Quality Board in the late 1970s. The Committee is examining the most polluted areas in the Bay to establish remedial action plans which identify the specific causes and outline the activities to correct pollution problems. An initial study in Virginia's Elizabeth River is already completed.

To coordinate with the States on developing biomonitoring programs, EPA has detailed the Chief Aquatic Biologist from its Wheeling, West Virginia laboratory to the Bay Program. Marine chronic toxicity tests and biomonitoring are already being introduced in the jurisdictions.

We see work on toxics increasing in 1988.

With respect to recommendations on Nutrient Loading Goals: The Chesapeake Executive Council plans to have the Interim Report of its Implementation Committee completed and reviewed by the public prior to the establishment of target nutrient goals for the main Bay and the major tributaries.

First steps in establishing such goals are being taken by the Living Resources Task Force which was established by the Implementation Committee in June 1986. Its task is to develop living resource and habitat requirements for key species to include the geographic area, and necessary habitat conditions for redevelopment and maintenance of healthy populations. These requirements also must be time-specific to protect critical species at the critical times in their life cycles. The Task Force will provide its recommendations to the Implementation Committee in May. After the Committee accepts the recommendations, they will be used to determine the effectiveness of alternative pollution control strategies in achieving those nutrient conditions. One of the means to examine control strategies will be the use of a steady state water quality model which simulates summer nutrient conditions.

One of the results of planned model runs will be a determination of whether the present water quality standards adequately protect the living resources, or whether conditions

needed by those resources require that additional controls be imposed. From such information, interim target loadings can be set by the jurisdictions and EPA.

Interim target nutrient loading goals for both phosphorus and nitrogen for the main Bay and all major tributaries could be suggested late in 1987. These goals could then be used as the basis for mid-course correction of programs to reduce both point and nonpoint source nutrient pollution.

CHESAPEAKE BAY PROGRAM MODELING

Question: I understand that the Chesapeake Bay Program is conducting a modeling effort to gain a better understanding of nutrients in the Bay. What is the status of that modeling effort? When does EPA anticipate that the results of the modeling effort will be available?

Answer: There are two different models: the Watershed Model which estimates the riverine loads to the Bay, and the Chesapeake Bay Water Quality Model which estimates pollutant concentration in the Bay from riverine loads and other pollutant loads which enter the Bay directly. The Watershed Model is fully developed and has been run. However, we are updating and expanding the input information, especially the land use data. The update will be completed later this year. The Chesapeake Bay Water Quality Model is being developed in two stages. The first stage makes the simplifying assumption of steady state conditions and the second stage model will simulate changes over time. Development and refinement of the steady state version of the Bay Water Quality Model is nearly completed. Work on the time variant version of the Bay Water Quality Model will begin shortly and take three years. The new model will be developed by the Corps of Engineers under a joint effort with the Environmental Protection Agency.

CHESAPEAKE BAY PROGRAM STAFFING

Question: What is the current status of the EPA Chesapeake Bay Program Staffing? How many employees are permanently dedicated to its operations? How many are temporary? How do these numbers compare to existing and proposed employee ceilings?

Answer: The Bay Program currently has an authorized EPA staff ceiling of ten full time equivalent employees. An additional seven overceiling positions, occupied by nine full and part-time individuals are allocated to the program. The regional allocation of overceiling positions is done annually, and so in a sense, these positions are temporary. The program is assisted by seventeen contractual employees who man the Chesapeake Bay Program Computer Center.

CHESAPEAKE BAY PROGRAM COMPUTER CENTER

Question: I understand that the Chesapeake Bay Program Computer Center is significantly overburdened and that routine analysis of the monitoring data and model runs are severely slowed. What are the expansion needs of the system, and what is being done to meet them? What progress has been made in computerizing the record keeping system for enforcement/compliance reports and to ensure that the system is compatible with State systems?

Answer: The Chesapeake Bay Program Computer Center is in need of increased central processing unit (CPU) and mass storage capability to continue the unique data management accomplishments of all parties involved in the Chesapeake Bay Program. Our need is for a new computer that is compatible with the current configuration and projected processing demand. This need could be met through a contract the Agency has in place that would allow the purchase of a computer with CPU and mass storage required by the Program for the next 3 to 5 years. Management is currently trying to assess certain hardware requirements in order to get a better idea of compatibility needs.

Computerized record keeping to track enforcement and compliance of point source dischargers with National Pollutant Discharge Elimination System (NPDES) permit limits is achieved through the Permit Compliance System (PCS). The NPDES permit specifies the type and amount of pollutants that may be discharged to surface waters. The PCS is the national data base for NPDES and contains data on permit limits, discharge concentrations and amounts, enforcement actions and compliance schedules.

EPA has issued a PCS Policy Statement establishing for EPA and the States the key management practices and responsibilities critical to effective use of PCS. While the aim of the policy is a consistent approach across regional and state NPDES programs, it retains flexibility for Regions and States to meet unique conditions.

NEW CHESAPEAKE BAY AGREEMENT

Question: During the June hearing before Senator Mathias' Governmental Affairs Subcommittee, EPA Administrator Lee Thomas proposed that a new Chesapeake Bay Agreement be developed. What is the status of this proposal?

Answer: The Chesapeake Executive Council and the Implementation Committee discussed the concept of developing a new Chesapeake Bay Agreement at their fall meetings in 1986. The Council agrees that setting nutrient goals was a powerful tool for the Great Lakes Region in gaining commitments to reduce phosphorus discharges. The Council envisions considering a similar approach in the Chesapeake Bay as a basis for future implementation plans.

At the January 1987 meeting of the Executive Council, Governor of the Commonwealth of Virginia, Gerald Baliles became Chairman of the Council. When he addressed the Council and proposed the agenda which he hoped to have completed during his year as Chairman, Governor Baliles stated: " I believe the Agreement is due for a thorough review -- to see how well it serves our present concerns and objectives." He has requested that the Implementation Committee examine the Agreement "with an eye to ensuring our momentum."

The first steps will be taken this fall after the Council, its member jurisdictions and the seven Federal agencies involved in the current Agreement consider the recommendations in the Interim Report.

The Governor believes that the Council needs to focus on instream nutrient standards and guidelines for each of the Bay's tributaries. Within the Interim Report the existing nutrient standards will be described and current nutrients research will be summarized.

The Council believes that target phosphorus and nitrogen loadings for tributaries and the Bay can be proposed with more confidence following refinement of the steady state water quality model and development of the time variable model.

Annex III of the Great Lakes Agreement contains the most important example of what the Chesapeake Bay Agreement could be in the future. This Annex contains the phosphorus load limits that have successfully improved water quality in Lake Erie and other areas.

LETTER FROM SENATOR QUENTIN N. BURDICK, CHAIRMAN, COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS, ET AL.

February 20, 1987

Mr. Lee Thomas
Administrator
Environmental Protection Agency
401 M Street, S.W.
Washington, DC 20460

Dear Mr. Thomas:

By this letter we request the submission of information, not later than March 6, 1987, regarding your agency's activities in addressing the environmental problems of the greenhouse effect, global climate change, and stratospheric ozone depletion.

The Senate Environment and Public Works Committee has held a number of hearings on the greenhouse effect, global climate change, and stratospheric ozone depletion. Testimony given at these hearings has shown that we are already committed to an unprecedented increase in surface temperature over the next few decades, with possible effects including a rise in global sea level, changes in ocean circulation, and changes in precipitation patterns.

We are deeply concerned by the prospect of such major and unparalleled changes in the composition of the atmosphere, and the implications for global climatic and environmental change. We are requesting information regarding your agency's efforts in these areas to assist us in understanding the existing and anticipated programs already addressing these issues. Specifically we would appreciate your responses to the attached questions.

We have forwarded a copy of this letter to the Chairman of the Appropriations Committee, and have requested that he incorporate these questions and your responses in the record of the budget hearings for FY88.

We look forward to receiving your response no later than March 6, 1987. If you have questions, please feel free to call Kate Kimball, Ron Cooper, Steve Shimberg, or Curtis Moore. They may be reached through the Committee on Environment and Public

Thank you for your support in working with us on these important environmental issues.

Sincerely,

Robert T. Stafford

Quentin N. Burdick

John H. Chafee

George J. Mitchell

Dave Durenberger

Max Baucus

LETTER FROM SENATOR QUENTIN N. BURDICK, CHAIRMAN, COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS, ET AL.

March 19, 1987

Senator William Proxmire, Chairman
Subcommittee on HUD and Independent Agencies
Committee on Appropriations
Room 142
Dirksen Senate Office Building
Washington, D.C. 20510

Dear Colleague:

We are writing to request your assistance in our evaluations of the adequacy of Federal agency efforts and funding levels to address the following environmental problems: the greenhouse effect, global climate change, and stratospheric ozone depletion.

As you may be aware, the Committee on Environment and Public Works has held a number of hearings on these issues. Testimony given at these hearings, and elsewhere, has caused us great concern over the prospect of unprecedented changes in global climate, as well as other environmental changes, and the implications of these changes.

There is broad scientific consensus that we are actively changing the composition of our atmosphere. Concentrations of carbon dioxide and other gases, including chloroflourocarbons, are increasing in the atmosphere as a result of man's activities. As a consequence, scientists predict unparalleled global warming and depletion of the Earth's protective stratospheric ozone layer. The implications include sea level rise, changes in rainfall patterns and agricultural regions, and increased incidence of skin cancer.

In order to assess the adequacy of Federal agency efforts to understand and respond to these problems, we have requested detailed information from various federal agencies on their programs relating to the greenhouse effect, global climatic change, and stratospheric ozone depletion. Attached are copies of the letters we sent to the Environmental Protection Agency, National Aeronautics and Space Administration, National Science Foundation, Federal Emergency Management Agency, Council on Environmental Quality, and the Office of Science and Technology Policy.

To insure a timely response to our inquiry, and to have a written record of agency responses, we would appreciate it if you would submit these questions on our behalf during the Appropriations Committee hearing process and include the questions, as well as agency responses, in the Committee hearing record.

Thank you for your help in this matter.

Sincerely,

Robert T. Stafford

Quentin N. Burdick

John H. Chafee

George Mitchell

Dave Durenberger

Max Baucus

Questions Submitted by Senate Environment and Public Works Committee

GREENHOUSE EFFECT, CLIMATE CHANGE, STRATOSPHERIC OZONE DEPLETION

Question: Please describe each of your program (s) which directly or indirectly involve or support work on (a) the greenhouse effect, (b) climate change, and (c) stratospheric ozone depletion, including: basic research efforts; effects on human health, biota, etc.; studies of policy options for avoiding, minimizing, or coping with predicted changes, including use of alternative fuels and substitute chemicals and conservation; and international programs.

Answer: Our programs are described below:

Greenhouse Effect and Climate Change

Research and Policy Studies: Since 1982, the Office of Policy, Planning and Evaluation has had a program to address the consequences of climate change, with a particular focus on identifying potential implications for EPA policies and opportunities for EPA and other agencies to factor the consequences of global warming, particularly rising sea level, into today's activities.

In the last year, the Offices of Research and Development, Policy, Planning and Evaluation, and Air and Radiation have been developing a plan for a climate program. The recent Congressional requirement to develop reports to Congress and to conduct research planning on the environmental impacts of climate change and on ways to limit emissions of greenhouse gases has further accelerated development of our activities. Our efforts to produce these reports will include preliminary assessments of the impacts of global warming on human health, ecosystems, coastal resources, agriculture, forestry, and water resources.

A program is also being initiated in our Office of Exploratory Research to fund basic research related to climate change. This program will support the substantial research efforts on climate supported by the Department of Energy (DOE), the National Oceanic and Atmospheric Administration (NOAA), the National Science Foundation (NSF), and the National Aeronautics and Space Administration (NASA). It will focus mainly on areas that have not been emphasized by the other agencies, specifically, short-lived tropospheric species other than chlorofluorocarbons which affect climate change.

International Activities: EPA is in the process of developing a workplan for international activities to complement its research and assessment program on climate change. An EPA representative attended the Villach Conference in October 1985, and EPA participates in a climate change research project under the US/USSR Environmental Agreement. We have also had preliminary consultations with Canada and the Netherlands on possible

joint projects in this area. We are currently assessing various options for new multilateral initiatives on global climate change in conjunction with the Department of State, NASA and NOAA.

Stratospheric Ozone Depletion

Research and Policy Studies: As you know, major research is being done in other agencies. The primary emphasis of EPA's basic research relates to laboratory and field studies on the effects of increased exposure to UV-B radiation on skin cancers, plants and aquatic organisms, polymer degradation and the formation of ground-level oxidants. EPA has funded research in these areas for several years.

EPA has initiated studies on the costs of limiting ozone-depleting chemicals as part of its analysis of regulatory options. These studies include engineering and cost analysis of reducing emissions for each of the major products made with CFCs or halons. We have also initiated studies of chemical substitutes for CFCs, including the establishment of an international panel of flourine research chemists who are evaluating the feasibility of benign chemical substitutes.

International Activities: EPA has been actively involved in international efforts related to depletion of the ozone layer since 1975. The Agency participated in the international negotiations on the Vienna Convention for the Protection of the Ozone Layer from 1981-1985, the United Nations Environmental Program (UNEP) technical workshops in Rome and Leesburg during 1986, and co-hosted and organized the International Conference on the Health and Environmental Effects of Ozone Modification and Climate Change in June 1986.

Over the past several months, EPA's primary focus internationally has been to assist in the development of and give technical support for the U.S. position at the resumed UNEP negotiations on a protocol for controlling emissions of ozone-depleting gases. EPA took part in the first and second sessions of these negotiations, in December 1986 and February 1987. The third session will be held April 27-30, 1987 and a Diplomatic Conference to assess the protocol is scheduled for September 14-18, 1987.

In support of the U.S. negotiating position and to advance longer-range research goals, EPA has also initiated and taken part in a number of bilateral activities. Last spring a team of NASA and EPA scientists and technical analysts spent a week each in India and Eygpt, briefing scientists and policy makers on the ozone layer issue. In December 1986, the ozone layer issue was established as a formal component of the US/USSR Environmental Agreement, and in January 1987 a team of EPA and NASA scientists went to Moscow to advance activities under this project. Bilateral consultations have also been held with the

United Kingdom, France, Belgium, Federal Republic of Germany, and the European Economic Commission, and scientific teams are slated to go to Korea and Japan and India.

Question: Please indicate your current agency priorities and where, among these priorities, the problems of the greenhouse effect, global climate change, and stratospheric ozone depletion appear.

Answer: Both stratospheric ozone protection and the greenhouse effect are major priorities within EPA. Since publication of our Stratospheric Protection Plan in January 1986, EPA has sponsored or co-sponsored numerous major workshops dealing with various aspects of these issues, issued a 4-volume proceedings from its conference on the effects of ozone depletion and climate change and a draft 5-volume risk assessment on stratospheric ozone modification. The Agency staff and budget committed to this issue have also increased, as has the active participation of senior managers including the Administrator. We have also maintained an effort to obtain an international protocol limiting global use of chlorofluorocarbons (CFCs) and halons.

Last year we formed an intra-agency working group specifically for the purpose of developing an expanded Agency program to address climate change. This effort has primarily involved four offices: the Office of Air and Radiation, the Office of Policy, Planning and Evaluation, the Office of Research and Development and the Office of International Activities. Within each of these offices, staff and resources have been increased to permit additional Agency efforts to analyze relevant aspects of this issue.

Question: Does your agency have a major thrust or focus with respect to greenhouse, climate change, and stratospheric ozone issues? What are the priorities within your greenhouse, climate change, and stratospheric ozone programs? Are these multi-year efforts? When do you anticipate completing each of these projects?

Answer: Our major thrust for each of these issues is summarized below:

Greenhouse Effect and Climate Change

Global climate change is an important issue that EPA plans to address in the next decade. Within EPA's climate program, our current priorities are producing the two reports to Congress, developing an analytical framework that identifies possible research needs and analyzing future policy questions (1988); developing a research plan (1987); developing the human resources necessary to influence policy decisions at the federal and international levels (ongoing); stimulating an inter-

national framework to examine scientific information and long-term options for limiting climate change (ongoing); and continuing to help state and local agencies to develop policies to adapt to sea level rise and other possible impacts of global warming (ongoing).

Stratospheric Ozone Depletion

EPA's primary responsibility under the Clean Air Act is to decide what, if any, further regulation of ozone-depleting chemicals is needed to protect public health and the environment from stratospheric ozone depletion. A final regulatory decision on additional controls of chlorofluorocarbons is schedule for November 1987. Projects to support this decision include technological analysis of a wide variety of chemicals and gases and their effects on the atmosphere, immune system and plants.

At the same time, EPA also has the responsibility under the Act and has taken steps to coordinate research efforts among other agencies through the Interagency Committee on Stratospheric Ozone Protection and has been actively involved in international activities related to developing an international agreement to limit emissions of ozone-depleting substances. This approach will allow for timely development of domestic regulatory options in consort with finalizing internal negotiating positions. This process will proceed through 1988, but final negotiations on a protocol for controlling emissions of ozone-depleting gases should be completed in September 1987.

In addition to its risk management activities, EPA funds on-going research into effects of increased exposure to UV-B radiation on human health, plants, aquatic organisms, polymer degradation and the formation of ground-level oxidants. Studies on dose response relationships are planned for completion on cataracts and other ocular effects, polymer degradation, melanoma and non-melanomas in 1987 as part of our regulatory decision determinations. Finally, an important research priority involves analysis of efforts to develop benign chemical substitutes.

Question: The scientific evidence demonstrates that we are already committed to a 2°C increase in global average temperature and that the effects of global warming may be manifested as early as the next several decades. How have these findings been factored into your planning? How does the magnitude and timing of these changes affect your projects?

Answer: A 1983 EPA report suggested that based on one modelling exercise even a ban on burning coal by the year 2000 would not be sufficient to prevent a 2°C warming by 2040 (more drastic measures, such as banning oil, gas, and other greenhouse gas emissions as well, were not examined). That report recommended the development of options for adapting to a global warm-

ing. Since then, EPA has investigated ways coastal communities could respond to the likely rise in sea level, and in some cases, current coastal activities have been modified accordingly. Options for adapting to other effects of global warming have not been developed to the same extent.

Another implication of the analysis you cite is that given the long period of time between emissions of greenhouse gases and the resulting global warming, we can prevent a large global warming only by limiting emissions long before the warming becomes clearly evident. This situation is in contrast to most other types of air pollution problems for which we can reasonably assume that curtailing emissions once we recognize the problem exists will result in its immediate eradication. Our current effort to develop an international stratospheric ozone protocol for chlorofluorocarbons (CFCs) is an important step that could also help to limit global warming. Finally, the analyses to support the reports to Congress will provide a further basis for planning, particularly for programs such as the environmental impact statement review process.

Question: Please provide a detailed accounting on the following, including a breakdown by specific offices/laboratories and projects for each fiscal year.

(A) For the greenhouse effect
  (1) Expenditures in FY86.
  (2) Appropriations and expected expenditures in FY 87.
  (3) Budget request in FY88.

(B) For climate change
  (1) Expenditures in FY86.
  (2) Appropriations and expected expenditures in FY 87.
  (3) Budget request in FY88.

(C) For stratospheric ozone depletion
  (1) Expenditures in FY86.
  (2) Appropriations and expected eexpenditures in FY 87.
  (3) Budget request in FY88.

Answer: A detailed accounting of the requested information is provided in the attached chart.

(THE INFORMATION FOLLOWS)

AGENCY RESOURCES DEDICATED TO STRATOSPHERIC OZONE DEPLETION
AND GLOBAL WARMING - 1986-1988
(thousands of dollars, extramural)

Office	1986		1987 a/		1988	
	FTE	Dollars	FTE	Dollars	FTE	Dollars
OAR Ozone:	2.5	$813	6.0	$3,000	5.0	0
Climate:	0	0	1.0	0	0	0
OAR Total	2.5	$813	7.0b/	$3,000	5.0	0c/
OPPE Ozone:	3.0	$500	3.5	$500	0	$500
Climate:	3.5	$735.1	5.5	$2,600	7.0	$400
OPPE Total	6.5	$1,235.1	9.0b/	$3,100	7.0	$900
ORD Ozone:	0	$721.2	1.0	$856.9	1.0	$874.1
Climate:	0	0	3.0	$1,000	3.0	$2,000
Exploratory Grants	0	0	0	$1,500	0	$1,500
ORD Total:	0	$721.2	4.0	$3,356.9	4.0	$4,374.1
OIA	0.5	0	1.2	0	1.2	0
Grand Total	9.5	$2,769.3	21.2	$9,456.9	17.2	$5,274.1

a/ 1987 figures include Congressional add-on: Agency total of $6.5 million ($2M for climate, $3M for ozone, $1.5 M for exploratory grants) and 11 full-time employees (5 FTEs for climate, 6 FTEs for ozone).

b/ Three staff detailed from OPPE to OAR, April 1, 1987.

c/ Resources will be reprogrammed from within the Agency as needed, depending on the schedule of regulatory decision on CFCs.

Question: Please describe how your agency's efforts are coordinated with those of other federal agencies and the scientific community.

Answer: This coordination is summarized below:

Greenhouse Effect and Climate Change

Our research efforts are coordinated with the National Climate Program and international organizations such as the United Nations Environment Program and World Meteorological Organization. We have informed a number of agencies regarding their participation in the planned reports to Congress and subsequent research, including the Forest Service, the United States Geological Survey (USGS), the National Science Foundation (NSF), the National Oceanic and Atmospheric Administration (NOAA), and the Department of Energy (DOE).

We actively solicit the participation of university and industry scientific communities and present our study plans and results to major conferences. Investigations of the impacts of sea level rise are being conducted jointly with such Federal agencies as the Delaware River Basin Commission and Army Corps of Engineers. In addition, Federal agencies and the scientific community are routinely sent our draft EPA reports for review and those reports are modified to reflect the comments we receive.

Stratospheric Ozone

Research activities are coordinated by the Interagency Committee on Stratospheric Ozone Protection which was created by the Clean Air Act and is chaired by EPA. In addition, the Office of the Federal Coordinator for Meteorological Services has recently reconvened a committee to draft a plan for monitoring the stratosphere. Finally, issues related to international negotiations are coordinated through an ad hoc working group convened by the Department of State. The working group includes a task force focussing on trade-related issues.

Question: What do you see as the five highest priority research needs in the area of greenhouse effect, global climate change, and stratospheric ozone depletion?

Answer: Our highest priority research needs are summarized below:

Greenhouse Effect and Climate Change

We expect to rely on the Department of Energy (DOE) for information on the carbon cycle and the direct effects of increased carbon dioxide concentrations; on the National Aeronautics and Space Administration (NASA) and the national Oceanic and Atmospheric Administration (NOAA) for satellite monitoring of

ecosystems and concentrations of other greenhouse gases, and on NOAA, NASA, and the National Center for Atmospheric Research for improved general circulation models (supported by the National Science Foundation). Within EPA, the highest research priority efforts are: (1) the potential impacts of a global warming on water resources, agriculture, forests, air pollution, human health, coastal erosion and flooding, and unmanaged aquatic and terrestrial ecosystems; (2) emission sources and sinks; (3) the development of basic data sets on emission sources, climate parameters, (4) development of possible strategies for cont-trolling emissions; and (5) ecosystems; and development of integrated models for analyzing policy options.

Stratospheric Ozone

EPA's five highest priorities for research include: additional research into chemical substitutes; further study of the relationship between melanoma and UV-B radiation; additional refinements and sensitivity analysis of two-dimensional models that run in a time-dependent mode; improved analysis of trends in global ozone measurements from both ground-based and satellite instruments; and expanded analysis of UV-B radiation on plants and aquatic systems. Some of these activities directly involve EPA, while others are the responsibility of other agencies.

COUNCIL ON ENVIRONMENTAL QUALITY

AND

OFFICE OF ENVIRONMENTAL QUALITY

STATEMENT OF A. ALAN HILL, CHAIRMAN, COUNCIL ON ENVIRONMENTAL QUALITY, AND DIRECTOR, OFFICE OF ENVIRONMENTAL QUALITY

ACCOMPANIED BY:
WILLIAM MILLS, MEMBER
JACQUELINE SCHAFER, MEMBER
LUCINDA SWARTZ, DEPUTY GENERAL COUNSEL

OPENING REMARKS

Senator MIKULSKI. We will now proceed to the Council on Environmental Quality and the Office of Environmental Quality regarding the fiscal year 1988 budget request.

With us today is Mr. A. Alan Hill, Chairman of the Council on Environmental Quality, and Director of the Office on Environmental Quality.

Mr. Hill, it is a pleasure to welcome you and your colleagues to the subcommittee. We have read your statement, so we would ask you to please summarize, if you wish, with the understanding that your full statement will be printed in the hearing record.

As I said, Mr. Proxmire wanted to be here himself, but Banking Committee business has him on the Senate floor. We have some questions from him for you, and then I have one, myself. Would you proceed.

INTRODUCTION OF ASSOCIATES

Mr. HILL. Thank you, Madam Chairman. Let me begin by introducing my colleagues, the other members of the Council on Environmental Quality. Dr. William Mills and Ms. Jacqueline Schafer. Among our staff here today is Ms. Lucinda Swartz, the Deputy General Counsel. Our General Counsel called this morning—she got sick at 3 a.m. this morning, and could not make it.

Senator MIKULSKI. She probably read some of those affirmative action reports from EPA.

Mr. HILL. I would be happy to discuss our record in that area.

Senator MIKULSKI. It is rather self-evident. Let's just fund them and let them go. [Laughter.]

BUDGET REQUEST

Mr. HILL. As you say, you have my brief prepared statement, which will be part of the record. Just let me say for the record that our ap-

propriation level is $862,000 in the President's request. The uses thereof are explained in my statement, and I think we can go right to questions.

[The statement follows:]

STATEMENT OF A. ALAN HILL

Mr. Chairman and members of the subcommittee, thank you for the opportunity to discuss with you the President's fiscal year 1988 budget request for the Council on Environmental Quality and the Office of Environmental Quality. With me today are the other two members of the Council, Dr. William Mills and Ms. Jacqueline E. Schafer. I would also like to introduce the General Counsel, Miss Dinah Bear, and the Deputy General Counsel, Ms. Lucinda Swartz.

The President is requesting an appropriation of $862,000 for CEQ for fiscal year 1988. This represents a slight increase in funding over that appropriated by Congress for fiscal year 1987. The proposed budget does not seek funding for new programs, but would allow CEQ to continue the staffing pattern, begun in this fiscal year, which enables us to hire two additional scientific or technical experts, a staff attorney, and an additional, part-time, support person.

To date in 1987, we have hired a legal advisor/science policy specialist who concentrates on biotechnology and risk assessment issues. We are in the final stages of recruiting for a science advisor to the Council and are also beginning to recruit for a staff attorney to assist the General Counsel in monitoring federal agencies' compliance with the National Environmental Policy Act and related tasks.

As I indicated in our 1987 budget request, the addition of scientific personnel will provide CEQ with independent expertise and an enhanced ability to provide timely policy advice to the President, the Executive Office, and the Congress. For example, CEQ expects to be able to accelerate publication of its annual environmental quality reports by utilizing its in-house personnel. We also anticipate increasing our ability to initiate special projects on issues such as wetlands regulation and protection policy.

The funding increase sought is due primarily to the requirements of the federal employee retirement system, the 3-percent civilian pay increase, and a substantial rise in the standard level user charge. In addition, we have requested a small increase of $3,000 for travel, commensurate with the anticipated increase in staff.

In sum, the CEQ budget request is in keeping with the overall deficit reduction objectives of the Executive Office of the President. This request, however, will allow the Council to maintain its authorized 13 full-time equivalent staff level and to fulfill its statutory responsibilities in an efficient and effective manner.

This concludes my prepared statement. The members of the Council and I will be happy to answer any questions you may have regarding the activities of the Council or the 1988 budget request.

CEQ ANNUAL REPORT

Senator MIKULSKI. Mr. Hill, in your opening statement, you indicate the additional in-house personnel will permit you to accelerate the publication of your annual report on environmental quality. This has been a touchstone for the American public over the years and has often provided both policymakers and interested citizens a concise statement on where the environmental initiatives stand.

What was the last year for which there was a report?

Mr. HILL. The last report was for 1984. The 1985 report is currently at the printer. Dr. Mills, my colleague, has been overseeing the project for the 1985 report. Ms. Schafer oversaw the project for the 1984 report. Ms. Schafer has volunteered to undertake a major effort to bring us up to date—in other words, complete three annual reports in the next 18 months. We are working on that plan now.

Senator MIKULSKI. The last time we got a report was 1984?

Mr. HILL. The last time you got a report was last year which was for the year 1984.

Senator MIKULSKI. So you are 3 years short?

Mr. HILL. Yes.

Senator MIKULSKI. When will the 1987 report be delivered?

Ms. SCHAFER. According to the plan that the chairman made reference to, we are working on the 1985 report now. That should be published shortly. It is at the printer.

The 1986 report, I am aiming for the end of this calendar year. The 1987 report, in the spring of 1988; and the 1988 report before the end of the year in 1988, which should bring us up to date.

Senator MIKULSKI. Mr. Chairman, can we look forward to annual reports coming out on an annual basis?

Mr. HILL. We are going to try the best we can, Senator. These reports, because of the interagency nature of them, are difficult to get data in as of the close of one calendar year. All the data doesn't come immediately. We go through a process of discussion with other agencies in preparing outlines for various chapters and getting assistance in preparation of those chapters.

The major difficulty we have had in the past, if I can reflect over the years since 1981, is in the interagency review process. In other words, when a draft is completed it goes through a review process among all the affected agencies.

Some respond more promptly than others, and we are talking about dealing with between 30 and 40 individuals in agencies. It has been one of our problems in getting it out on time.

Senator MIKULSKI. I know Mr. Proxmire and I believe in something called management-by-due-date. Do you have the statutory authority to essentially tell, when you circulate this, that if it is not there, you are going to move on without them. Do you need that authority? And then cite an agency for—just name them in your report for having signed off, and just publish without them?

Mr. HILL. We do not have a specific statutory due date in the National Environmental Policy Act.

Senator MIKULSKI. You see what I am saying? If they don't sign off, why can't you just go without them. If they don't sign off, they miss the opportunity to do so. Give them a due date, and with the presumption that if they don't sign off, that it is OK with them, and you will go with it.

Mr. HILL. We can give that a try.

Senator MIKULSKI. I think you ought to give it a try. I think you ought to tell agencies to fish or cut bait, and tell EPA and all those other agencies you coordinate with that you are going to work on the assumption that if you don't hear from them, they agree with it. Try it; I think you will like it.

Mr. HILL. Thank you.

STAFFING PATTERN

Senator MIKULSKI. Mr. Hill, when Congress took action on your budget for the current fiscal year, it directed that these funds would be used to augment the Council's technical and scientific staff. You are budgeting this year for two environmental scientist technicians; are they on board yet?

Mr. HILL. Not as yet. We have just finished recruiting for the senior scientist, the science advisor, and we will be able to announce his name—he is currently in the South Pacific on a research project. He will be back on April 4, at which time we will sign an agreement for him coming aboard.

At that point, we will circulate his curriculum vitae and a list of his publications. I am quite sure, and hopeful, that everyone will be very pleased with the quality of the individual we have been able to recruit.

The junior scientist position we are just now beginning to recruit for.

Senator MIKULSKI. You are also budgeting in fiscal year 1987 for an extra confidential assistant administrator specialist. Why do you need two? I don't want to appear critical, but I am curious as to why you need two confidential assistants, when there seems to be a need for technical and scientifics there.

Mr. HILL. Those two positions provide support to the members of the Council and I, in our activities.

Senator MIKULSKI. Well, like what kind of help? Is it confidential?

Mr. HILL. They do handle confidential documents in our work with the White House and the heads of other agencies. That is the nature of the designation of the position. They are Schedule C positions, which is also called confidential assistant.

Senator MIKULSKI. Yes; it is a high-level political appointment—isn't that what a Schedule C tends to be?

Mr. HILL. Yes.

Senator MIKULSKI. And we know that your job is, in many ways, administrative. I think we feel that the failure to produce three annual reports indicates that there needs to be a better paper flow. Do you think you need that? We need to know that, but we also really want you to have the scientific and technical capability that you need.

Mr. HILL. Yes; and we are, as I said, recruiting for that.

Senator MIKULSKI. You have had a policy analyst on detail since 1986 over at NOAA. While I realize this individual's services are reimbursable, I wonder why the assignment has gone on for so long.

NATIONAL ACID PRECIPITATION ASSESSMENT PROGRAM

Mr. HILL. That particular assignment provides assistance to the National Acid Precipitation Assessment Program, which is housed in the offices of the Council. The Council on Environmental Quality, and specifically Jackee Schafer, serves as Executive Secretary for the national program, and we work closely with the national program. Each agency in the national program—CEQ and 11 others—provide some type of support for the NAPAP effort.

In this case, we provide a slot and are reimbursed for providing that slot. The individual concerned is being moved to the Department of Agriculture on a permanent basis and will become part of the Department of Agriculture's contribution to the national program.

Senator MIKULSKI. I see. Well, I know that Mr. Proxmire has some additional questions that he would like to submit to you for the record, which we will be pursuing.

NEED FOR TIMELY CEQ REPORTS

I would like to just follow up on this whole report issue. I think it is great that you are going to undertake that. We are prepared, through either report language or whatever, to give you the clout to get this report out.

The committee will help get information more quickly if you want. We are HUD and Independent Agencies. We would like you, in your next interagency task force meetings, to essentially say that we don't want to slay the messenger in this instance, but you have a responsibility given to you by Congress to issue this report. It was meant to be exactly what it is, an independent review coordinating the information and a one-stop shop for folks like myself, the authorizing committees, interested citizens groups and economic development people.

We need those reports in a timely way. We are willing to help you move in a timely way if you have your own internal shop together. If it is your agencies, then I think you need to tell them squarely that Congress really wants them to cooperate and try some of these other suggestions, or whatever management techniques you want.

Ms. SCHAFER. Madam Chairman, may I make a point?

Senator MIKULSKI. If you have any other suggestions that you think we can do to help you fulfill this mandate, we are absolutely committed to this.

Ms. SCHAFER. I don't want you to be left with the impression that we are having difficulty with other agencies. It is a time-consuming process. We are a very small agency and I have to credit other agencies with providing staff and information which makes it possible for us to write a substantive report.

It is possible, and I think I would like to accept some of the responsibility that, given the size of the agency, we were a little bit overambitious in the document that we attempted to produce the last time around, and we lost some time in doing that.

Senator MIKULSKI. You lost more than time; you lost a lot of credibility and we lost a lot of information. You hear Senators D'Amato and Grassley talking about the clean air nonattainment problem. We feel that very keenly in the Northeast Corridor, and in the Colorados and in the Californias. We need information. We need it on a timely basis.

Ms. SCHAFER. I understand that, Madam Chairman. I just want it to be clear what we also get a lot of support from other agencies in to the production of the report, and we are grateful for that support in a substantive way.

Experience is a great teacher. This was the first report that I ever worked on and——

Senator MIKULSKI. I think you worked on the 1984 report.

Ms. SCHAFER. This one is—the 1984 report was the first one I worked on, and the experience that I gained in doing that will make the production of the future reports a lot smoother.

Senator MIKULSKI. We would hope that there would be a matter of institutional memory in that there would be a basic format that would be followed and everyone could anticipate it. Like a financial report, fiscal report, or so on.

Ms. SCHAFER. The important feature of the plan is to try to imitate as much as possible the approach that the Council of Economic Advisors has taken in producing its annual report which——

Senator MIKULSKI. Don't imitate them. Just do what you need to do, and don't imitate the National Security Council, don't imitate the Economic Advisors—don't imitate anybody. You knew what Congress expects from you. You know we want the most efficient format to accomplish that.

Mr. HILL. Madam Chairman, let me say, I have heard your message. I appreciate your offer of assistance. We will do the very best we can to perform.

PORTAMERICA PROJECT

Senator MIKULSKI. I would like to move on to my own question.

This goes to you, Mr. Hill, and relates to the PortAmerica development project.

Mr. HILL. Somehow I felt that question might come up.

Senator MIKULSKI. Your agency has designated the National Capital Planning Commission as the lead agency with responsibility for reviewing the design of PortAmerica.

Could you tell me the status of the federal review of PortAmerica by the NCPC and what steps you are taking to guarantee that they complete this review in an expeditious way?

Mr. HILL. As a matter of fact, I met with the executive director the day before yesterday, Dr. Griffith, and his staff to discuss that very point. I believe that NCPC is about to move to speed up its processing, its consideration of the question of preparation of an environmental impact statement, or not.

As you know, Senator, the issues that raised this to a level of public controversy earlier seemed to be diminishing; as the height of the tower has diminished, so has the public controversy diminished.

Dr. Griffith advised on Wednesday that the agency will begin work on the environmental documentation next month. He has reviewed——

Senator MIKULSKI. Is that April?

Mr. HILL. Yes; he has reviewed with the applicant, Mr. Lewis, the data currently available. Some of it is nearly completed, in some areas of the environmental documentation. Some material is nearly 100 percent complete; others are not.

He will be meeting with Mr. Lewis in the near future to discuss those deficiencies and to develop ways to fill those voids. So we are really encouraging him to get on with the job of environmental documentation completed, because this is (*a*) highly visible here in the Nation's Capital, and (*b*) I view one of the assignments of the Council is to enhance, to promote the NEPA process, itself. One thing that hurts that process is if something drags on and on and on, and that is not productive.

Senator MIKULSKI. I am a strong supporter of the PortAmerica project, but at the same time, they must comply with necessary federal regulations. I think PortAmerica's redesign of their project, to deal with both safety concerns as well as the height and aesthetic issues, shows the flexibility of the business community.

We want that project to begin because of its tremendous benefit to Prince Georges County. Also, there is the fact that there are those of us who believe that zoning and planning belongs to local government, and therefore, to that county. I thank you for everything you are doing to move the process along, and I would appreciate your keeping me advised of the progress of the administrative view.

Mr. HILL. We would be happy to do that.

Senator MIKULSKI. Did you want to add anything else to that?

Mr. HILL. I don't think you will find any disagreement among my colleagues and the staff at the Council with regard to the proper role, or place for land-use decisionmaking; that is, being in local state and local government and not in the federal government.

We are trying to move this along and we keep working with the agency, with NCPC, but also with other federal agencies. One of them, which will be in a permit-issuing mode, has already made a preliminary determination that because the size of the project has gone down, and because the amount of fill required for the waterside portion of the project has been reduced by nearly 50 percent, they are feeling that an environmental impact statement may not be required. So that we will be working out over the next 2 to 3 months.

Senator MIKULSKI. Good. If you could keep me apprised of the agencies, and also the agencies moving expeditiously. I think what we are saying here is the business community wants to comply, but we need your help to bring the federal review to a close.

We appreciate your help on this, and this then concludes my questions and I believe Senator Proxmire's.

SUBMITTED QUESTIONS

[The following questions were not asked at the hearing but were submitted to the Council for response for the record:]

Questions Submitted by Senator Domenici

QUESTION: Would your agency favor a biennial budget process? What benefits would your agency achieve in a two-year appropriation cycle?

ANSWER: The Administration is studying the subject of multi-year budgeting and whether to propose biennial budgeting for appropriation accounts other than the national defense account. Biennial budgeting would appear to have substantial benefits for a number of agencies.

The Council on Environmental Quality has not taken a position on the biennial budget concept. The Chairman of CEQ, however, supports a biennial budget process. Such a process would require federal agencies to do more advance planning as to its personnel and program needs and to focus on longer-term goals.

QUESTION: Approximately what portion of your annual appropriation request would you consider simply repetitious of the previous year's submission?

ANSWER: The Chairman of CEQ estimates that about 30% of its budget request is repetitious in that it provides substantive detail on the statutory responsibilities and activities of the agency which do not change from year to year.

QUESTION: What difficulties can you foresee in preparing and submitting a two-year budget to the Congress?

ANSWER: The primary difficulty would be in forecasting two years in advance. One of the Council's most important functions is to deal with environmental policy issues. Many emerging environmental issues are typically not foreseeable two years in advance, thus making it difficult to prepare budgets which would allow for their consideration.

QUESTION: Would you expect to realize any budget savings if you could plan your agency budget on a two-year basis? If so, could you estimate how much?

ANSWER: It is expected that CEQ would realize only a minimal budget savings from a biennial budget process.

QUESTIONS SUBMITTED BY SENATOR PROXMIRE ON BEHALF OF SENATORS, STAFFORD, CHAFEE, DURENBERGER, BURDICK, MITCHELL, AND BAUCUS

1. Please describe each of your program(s) which directly or indirectly involve or support work on (a) the greenhouse effect, (b) climate change, and (c) stratospheric ozone depletion, including:
   (a) basic research efforts
   (b) effects on human health, biota, etc.
   (c) studies of policy options for avoiding, minimizing, or coping with predicted changes, including use of alternative fuels and substitute chemicals and conservation.
   (d) international programs

2. Please indicate your current agency priorities and where, among these priorities, the problems of the greenhouse effect, global climate change, and stratospheric ozone depletion appear.

3. Does your agency have a major thrust or focus with respect to greenhouse, climate change, and stratospheric ozone issues? What are the priorities within your greenhouse, climate change, and stratospheric ozone programs? Are these multi-year efforts? When do you anticipate completing each of these projects?

4. The scientific evidence demonstrates that we are already committed to a 2°C increase in global average temperature, and that the effects of global warming may be manifested as early as the next several decades. How have these findings been factored into your planning? How does the magnitude and timing of these changes affect your projects?

5. Please provide a detailed accounting on the following, including a breakdown by specific offices/laboratories and projects for each fiscal year.
   (A) For the greenhouse effect
      (1) Expenditures in FY86.
      (2) Appropriations and expected expenditures in FY87.
      (3) Budget request in FY88.
   (B) For climate change
      (1) Expenditures in FY86.
      (2) Appropriations and expected expenditures in FY87.
      (3) Budget request in FY88.
   (C) For stratospheric ozone depletion
      (1) Expenditures in FY86.
      (2) Appropriations and expected expenditures in FY87.
      (3) Budget request in FY88.

6. Please describe how your agency's efforts are coordinated with those of other federal agencies and the scientific community.

7. What do you see as the five highest priority research needs in the area of greenhouse effect, global climate change, and stratospheric ozone depletion?

ANSWER: These questions were posed to CEQ Chairman Hill in a letter from the several Senators dated February 20, 1987. Chairman Hill's response, dated March 6, 1987, is attached.

LETTER FROM A. ALAN HILL

EXECUTIVE OFFICE OF THE PRESIDENT
COUNCIL ON ENVIRONMENTAL QUALITY
722 JACKSON PLACE N W
WASHINGTON D C 20006

March 6, 1987

The Honorable Robert T. Stafford
Ranking Minority Member
Committee on Environment and Public Works
SH-133 Hart Senate Office Building
Washington, D. C. 20510

Dear Senator Stafford:

This is in response to your letter of February 20, 1987, requesting information regarding the Council on Environmental Quality's (CEQ) activities in addressing global climate change, the greenhouse effect, and ozone depletion.

Many of the questions posed in your letter relate to agencies which have responsibilities to implement a particular program, with specific projects (construction projects, regulatory programs, etc.). CEQ neither engages in site-specific projects, nor regulates any segment of the private sector, nor conducts any laboratory research programs. Therefore, questions relating to those types of activities are inapplicable.

As you know, however, CEQ does have significant responsibilities in overseeing the National Environmental Policy Act (NEPA). In that regard, we are initiating an examination of the greenhouse effect and ozone depletion as they are currently being treated in the framework of the NEPA process. The Council will be commencing this activity in the near future. As I stated in my letter to you of March 3, 1987, addressing this issue, I will begin this process by holding a Sunshine Act meeting. I will keep you advised of our progress in this area.

Sincerely,

A. Alan Hill

A. Alan Hill
Chairman

SUBCOMMITTEE RECESS

The subcommittee will stand in recess until Wednesday, April 1, in room SD–124, when we will take testimony from the Department of Housing and Urban Development.

Thank you, very much.

[Whereupon, at 11:30 a.m. Friday, March 27, the subcommittee was recessed to reconvene at 10 a.m. Wednesday, April 1.]

LIST OF WITNESSES, COMMUNICATIONS, AND PREPARED STATEMENTS

	Page
Adams, Maj. Gen. A.J., U.S. Army, Secretary American Battle Monuments Commission	1
Prepared statement	2
Badger, Col. Frederick C., American Battle Monuments Commission	1
Banister, G. Huntington, Controller, Selective Service System	25
Barnes, A. James, Deputy Administrator, Environmental Protection Agency	635
Becton, Julius W., Jr., Director, Federal Emergency Management Agency	495
Biographical sketch	510
Prepared statement	502
Bloch, Erich, Director, National Science Foundation	327, 445
Prepared statement	334
Bragdon, Clyde A., Jr., Administrator, U.S. Fire Administration	495
Biographical sketch	515
Campbell, John C., Acting Assistant Administrator for Policy, Planning and Evaluation, Environmental Protection Agency	635
Carozza, Shirley C., Director, Division of OS Budget Services, Department of Health and Human Services	121
Costanzo, Raymond J., Superintendent, Army Cemeterial Expenses	15
Cox, David A., Associate Deputy Administrator for Management, Veterans Administration	159
D'Amato, Hon. Alfonse M., U.S. Senator from New York, prepared statements	7, 197, 360
Dawson, Carol G., Commissioner, Consumer Product Safety Commission	53
Prepared statement	65
Defiore, Leonard, Executive Director, Consumer Product Safety Commission	53
Doyle, John S., Jr., Principal Deputy Assistant Secretary of the Army for Civil Works, Army Cemeterial Expenses	15
Prepared statement	16
Duryee, Harold T., Administrator, Federal Insurance Administration, Federal Emergency Management Agency	495
Biographical sketch	514
Early, William B., Jr., Director of Budget, General Services Administration	143
Ebel, Wilfred L., Acting Director, Selective Service System	25
Prepared statement	28
Fenner, Robert M., General Counsel, National Credit Union Administration	45
Graham, Anne, Commissioner, Consumer Product Safety Commission	53
Prepared statement	67
Graham, Dr. William R., Science Adviser to the President, and Director, Office of Science and Technology Policy, Executive Office of the President	469
Prepared statement	472
Gronvall, Dr. John A., M.D., Chief Medical Officer, Veterans Administration	159
Prepared statement	172
Hamerschlag, Arthur S., Acting Chief Memorial Affairs Director, Veterans Administration	159
Prepared statement	175
Hill, A. Alan, Chairman, Council on Environmental Quality, and Director, Office of Environmental Quality	895
Letter from	904
Prepared statement	896

Page

Hoffman, Conrad R., Director, Office of Budget and Finance (Controller), Veterans Administration 159
Ivers, Donald L., General Counsel, Veterans Administration 159
Jacobik, Barbara A., Budget Officer, Federal Emergency Management Agency 495
Biographical sketch 516
Jensen, Lawrence J., Assistant Administrator, Water, Environmental Protection Agency 635, 665
Jepsen, Roger W., Chairman, National Credit Union Administration 45
Prepared statement 46
Johnsen, Kenneth, Associate Director for Information Management, Selective Service System 25
Kingsbury, Dr. David, Assistant Director for Biological, Behavioral and Social Sciences, National Science Foundation 327
Knauer, Virginia H., Special Adviser to the President for Consumer Affairs 121
Prepared statement 124
Krueger, Paul K., Deputy Associate Director for National Preparedness Programs, Federal Emergency Management Agency, biographical sketch 518
Kwiatkowski, Dennis H., Chief, Individual Assistance Division, Disaster Assistance Programs, State and Local Programs and Support Directorate, Federal Emergency Management Agency, biographical sketch 515
Lindsey, Robert E., Jr., Director for Operations, Veterans Administration 159
Livingstone, Susan, Associate Deputy Administrator for Logistics, Veterans Administration 159
Mackey, John, General Counsel, Consumer Product Safety Commission 53
Martin, John C., Inspector General, Environmental Protection Agency 635
Marvin, Frank R., Director, Management Staff, Office of Consumer Affairs 121
Mays, Richard H., Acting Assistant Administrator for Enforcement and Compliance Monitoring, Environmental Protection Agency 635
McLoughlin, David, Deputy Associate Director, State and Local Programs and Support, Federal Emergency Management Agency 495
Biographical sketch 511
Letter from 542
Messner, Howard M., Assistant Administrator, Administration and Resources Management, Environmental Protection Agency 635, 665
Mikulski, Hon. Barbara A., U.S. Senator from Maryland, prepared statement 328
Mills, William, member, Council on Environmental Quality 895
Moore, Dr. John, Deputy Director, National Science Foundation 327, 445
Moore, John A., Assistant Administrator for Pesticides and Toxic Substances, Environmental Protection Agency 635, 665
Moran, Col. Clayton L., American Battle Monuments Commission 1
Murr, Thomas W., Jr., Deputy Executive Director, Consumer Product Safety Commission 53
Nasif, Teresa N., Director, Consumer Information Center 143
Prepared statement 145
Newill, Vaun A., Assistant Administrator for Research and Development, Environmental Protection Agency 635
Nicholson, Dr. Richard, Assistant Director for Mathematical and Physical Sciences, National Science Foundation 327, 445
Orrell, George H., Principal Staff Advisor on Financial, Budget, Manpower, and Organizational Management, Federal Emergency Management Agency, biographical sketch 512
Paul K. Krueger, Deputy Associate Director, National Preparedness Programs, Federal Emergency Management Agency 495
Perry, Spence W., General Counsel, Federal Emergency Management Agency, biographical sketch 517
Poling, William, Budget Officer, National Credit Union Administration 45
Porter, J. Winston, Assistant Administrator, Solid Waste and Emergency Response, Environmental Protection Agency 635, 665
Potter, J. Craig, Assistant Administrator for Air and Radiation, Environmental Protection Agency 635, 665
Riley, D. Michael, Director, National Credit Union Administration's Office of Examination and Insurance 45

	Page
Roy, Caesar A., Deputy Associate Director, Training and Fire Programs, Federal Emergency Management Agency	495
Biographical sketch	513
Rudd, Michael, Director, Office of Personnel and Labor Relations, Veterans Administration	159
Ryan, Col. William E., American Battle Monuments Commission	1
Ryan, David P., Comptroller, Environmental Protection Agency	635
Scanlon, Terrence, Chairman, Consumer Product Safety Commission	53
Opening statement	57
Personal statement	62
Schafer, Jacqueline, member, Council on Environmental Quality	895
Schmitt, Roland W., Chairman, National Science Board	445
Prepared statement	451
Smith, Julius, Project Engineer, Army Cemeterial Expenses	15
Smith, Rory, Budget Officer, Army Cemeterial Expenses	15
Steeves, Robert F., Deputy Director, Office of Consumer Affairs	121
Streisinger, Cory, legal counsel to the Governor of Oregon, letter from	524
Suh, Dr. Nam P., Assistant Director for Engineering, National Science Foundation	327
Swartz, Lucinda, Deputy General Counsel, Council on Environmental Quality	895
Thomas, Lee M., Administrator, Environmental Protection Agency	635, 665
Prepared statement	639
Thompson, Jonathan F., Executive Assistant to Dr. William R. Graham, Director, Office of Science and Technology Policy, Executive Office of the President	469
Tidball, William C., Chief of Staff, Federal Emergency Management Agency	495
Biographical sketch	512
Toolen, Vincent, President, Central Liquidity Facility	45
Toye, Ms. Sandra, Controller, National Science Foundation	327
Turnage, Gen. Thomas K., Administrator, Veterans Administration	159
Prepared statement	164
Van Hooser, David B., Director, Information Resources Management Office, Veterans Administration	159
Vogel, Raymond J., Chief Benefits Director, Veterans Administration	159
Prepared statement	174
Wilson, Jennifer Manson, Assistant Administrator for External Affairs, Environmental Protection Agency	635
Wilson, Joy, Assistant Administrator, External Affairs, Environmental Protection Agency	665
Woloshyn, George, Associate Director, Emergency Operations, Federal Emergency Management Agency	495
Biographical sketch	516
Yamada, Gerald H., Deputy General Counsel, Environmental Protection Agency	635

SUBJECT INDEX

AMERICAN BATTLE MONUMENTS COMMISSION

	Page
Budget:	
Initial submission	3
Request	1
Colonel Brown's departure	4
Exchange rate:	
Deteriorating and program supplemental	5
Estimates	6
Private contributions	5
Two-year appropriation request	8
Vandalism	4

CONSUMER PRODUCT SAFETY COMMISSION

Activities, ongoing	55
All-terrain vehicles	95
Budget request	54
Child drownings	64
Cigarette safety	56, 69
Consolidation	91
CPSC/Industry efforts, joint	93
GAO report	68
Hotline resources	99
Import surveillance	55
Information and education resources	98
Management	89
Move to Bethesda	64
Priority projects	54
Public information	55
Quorum requirement	91
Riding mowers	97
Single administrator	91
State grants	96
Statement, summary of	54
Toy safety conference	70
Costs for	95
Two-year appropriation request	68
Voluntary standards	56, 64, 92

COUNCIL ON ENVIRONMENTAL QUALITY

AND

OFFICE OF ENVIRONMENTAL QUALITY

Budget request	895
CEQ annual budget	896
CEQ reports, need for timely	899
National Acid Precipitation Assessment Program	898
PortAmerica project	900
Staffing pattern	898

DEPARTMENT OF DEFENSE—CIVIL

Department of the Army

Army Cemeterial Expenses

	Page
Budget request	15, 17
Burials and inurnments	16
Columbarium	19
Donation program	18
Flagstaffs and monuments	20
Land development	20
Parking, paid	18
Reimbursement language	20
Security contract	20

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Office of Consumer Affairs

Activities, summary of	121
Appropriations process, change in	130
Budget request	121
Consumer complaints	131
Consumer Education Program	123
Consumer's Resource Handbook	122
Deficit-cutting measures	122
Information and education programs	134
International trade	130
National Consumers Week	121
President Reagan, meetings with	130
Reduction in force	132
Staff reductions, effect of	132
User fees	133

ENVIRONMENTAL PROTECTION AGENCY

Acid rain	651
Relations with Canada on	653
Stafford-Mitchell bill	654
Affirmative action	675
Agency priorities, report on	667
Budget:	
Request	635
Three principal categories	637
Total request	650
Chesapeake Bay Program, funding for the	659
Clean Water Act, deadline for compliance with	649
Contract management, request for	670
CRT, experimental use permit for	650
Enforcement, full-time equivalents for	646
Federal Employee Retirement System, transferring funds to pay for	666
Funding, adequate	642
Global environmental issues	668
Leaded gasoline, ban on	647
Management and support budget	669
Nonpoint source pollution	656
Federal agencies coordination on	658
Ocean incineration	674
Ozone:	
Briefing Senate staff on	671
Modeling and nonattainment	670

Page

Ozone—Continued
- Nonattainment problems ... 673
- Using ethanol blends in nonattainment areas ... 682

Radon:
- Issue ... 661
- Lead agency for research ... 663
- Research ... 677

Split-flow project ... 651

Superfund:
- Budget ... 644
- New language ... 674
- Obligations ... 680

Texas Eastern pipeline ... 643

Three Mile Island ... 660

Title III: Community right to know ... 645, 681

Unleaded gasoline in farm machinery, report on ... 646

EXECUTIVE OFFICE OF THE PRESIDENT

Office of Science and Technology Policy

Basic research ... 470

Federal spending ... 477

Foreign contributions ... 478

Mixed fleet ... 482

National Academy of Science, capability of members ... 479

Nuclear:
- War ... 484
- Winter ... 483

Personnel, technologically qualified ... 478

President's proposed budget ... 471

R&D budget ... 471

SDI:
- Cornell poll on ... 480
- Cost estimates of ... 479
- Funds ... 477

Soviet cooperation ... 486

Space station ... 481
- Budget ... 478
- Expenditures for ... 482

Summary statement ... 469

Supercollider budget ... 478

Two-year appropriation bill ... 477

U.S. economic competitiveness ... 471

FEDERAL EMERGENCY MANAGEMENT AGENCY[1]

Attack preparedness in the law ... 528

Budget highlights ... 500

Chemical plants, emergency preparedness around ... 551

Civil defense ... 496
- Amendment ... 519
- Comparison with Soviet civil defense ... 522
- Exercise ... 523
  - Nature of ... 528
  - Requirement for ... 527
  - Scenario ... 529
- Outyear costs of ... 548

Emergency management at local levels ... 552

Emergency operating centers ... 519, 548

Emergency plans, approval of ... 541

Evacuation planning, role in ... 545

Page

FEMA as a consultant to NRC ... 545
Fire Administration and Fire Academy, cooperation between ... 534
Hazardous materials accidents, training for ... 550
National security decision directive ... 497
Nuclear attack, survivability of ... 547
Nuclear powerplants and local planning ... 535
Office of Training and Fire Programs, reorganization of ... 531, 534
  Effect of ... 533
  Relocation costs ... 532
  Timing of ... 533
Organizational structure ... 501
Population protection ... 521
Purchase of property ... 531
SDI, relationship of to civil defense ... 546
Two-year appropriation request ... 518
Volunteer/self-help program ... 521, 547

GENERAL SERVICES ADMINISTRATION

CONSUMER INFORMATION CENTER

AIDS, materials on ... 150
Budget request ... 143
Free titles ... 150
OMB request ... 150
Public service materials ... 152
Publications distributed, number of ... 151
Sales publications, price of ... 151
Two-year budget cycle ... 150

NATIONAL CREDIT UNION ADMINISTRATION

Administrative:
  Expenses ... 47
  Requirements ... 49
Budget request to OMB ... 47
Credit unions, economic climate of ... 49
Direct loans, status of ... 49
Examination cycle ... 47
Examiner staff ... 48
Loan balance ... 47
Promotional and educational travel ... 48
Statement, synopsis of ... 45
Two-year budget cycle ... 46

NATIONAL SCIENCE FOUNDATION

Anthropology program ... 374
Basic research and education ... 330
Basic science and technology centers, new ... 378
Biological, behavioral, and social sciences ... 371
Budget:
  1988 request ... 331
  Rising ... 330
Cellular biosciences research ... 373
Coordination with other agencies ... 349
Disciplinary programs and facilities ... 332
Economic:
  Competitiveness ... 329
  Research ... 460
Education ... 331
  Precollege ... 351
Engineering:
  Emerging technologies ... 369
  Research centers ... 352, 459

	Page
EPA, overlap with	365
Funds, geographic distribution of	354
Geosciences	461
Higher education of science and engineering students in key areas	466
Incorrect image of NSF	369
IPA's, use of	359
Junior scholars program	468
Law and social sciences program	461
Materials research:	
Groups	456
Industrial participation in	458
Laboratories	456
New groups	457
Mathematical and physical sciences fiscal year 1988 request	364
Mathematical Sciences Division	455
Microtron funding	364
Peer review system	353
Plant sciences programs	352
Precollege education	467
Product development and management request	357
Productivity, in-house	358
Research and development:	
Impact of insufficient funding	350
Impact of results	454
Judging the success of investments in	447
Research competition from abroad	351
Science and technology centers	332, 449
Scientific, technological, and international affairs	462
Statement summary	329
Structures and building systems research	367
Supercomputer centers:	
Commitments	445
Status of	446
Supercomputers	361
Technology transfer	464
Role of national labs in	465
Two-year appropriation request	356, 376
University research, value of to industry	448
Very large baseline array	463
Wisconsin's standing at NSF relative to other states	362

SELECTIVE SERVICE SYSTEM

Address verification	34
Budget request	25
To OMB	31
Contracting out	36
Federal telecommunications system, modernization of	37
Health care personnel	26
Immigration:	
Reform and additional funds	33
Reform law	26
Mobilization exercises	35
Personnel	26
Registration	25
On time of 18-year-olds	31
Target cities with shortfalls	32
Two-year budget cycle	31

VETERANS ADMINISTRATION

	Page
Aging in the VA, care for the	198
AIDS:	
Profiles of patients	196
Research	195
Treatment of veterans with	194
Workload estimate	195
Benefits program	161
Budget request	161
Cardiac surgery	245
Category C workload	237
Department of Memorial Affairs	163
DHCP and IHS:	
Booz-Allen & Hamilton comparison of	231
Comparison of	239, 242
Eligibility criteria	233
Geriatric evaluations	200
Grace Commission and Coopers & Lybrand	176
Home care alternatives	199
Hospital and medical care program	162
Hospital computer program, decentralized	230
Institutional versus noninstitutional care	235
Insurance consolidation, congressional concern	229
Loan guaranty revolving fund	185
Means testing	233
Medical:	
Care rescission	231
Construction program	163
Specialized programs	244
Mission changes	199
Physician assistants, use of	238
Procurement:	
Legislation	184
Policy	176
Productivity	186
Department of Veterans Benefits	193
Employment decrease	193
Insurance	227
Renal transplant	248
Rescission on categories A and B, effect of	234
Senate Veterans Affairs Committee recommendations	236
Senior executive service bonuses	187
Specialized care areas	249
Status report on implementation of Coopers & Lybrand report recommendations	178
Two-year budget cycle	185
VA care, accessing	226

O

70- 539 (920)